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Cover: Ensoniq TS-10, Tascam M-1508, & Marantz PMD740 photographs: Warren Hukill. Ussachevsky photograph: Rosalee Vogel.



50 HOME STUDIO SOLUTIONS

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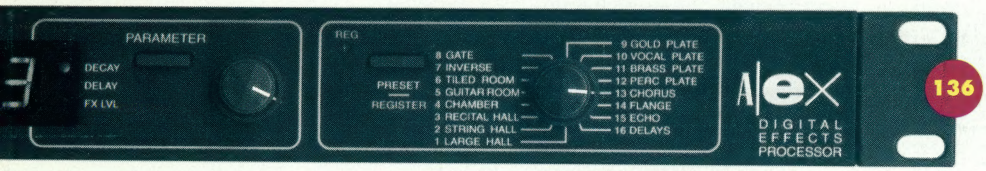
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DOMINIC MILANO



BLATHERING ON BOREL AVENUE

EIGHTEEN DAYS DOWN. TWO MORE to go before we can call this issue done. But it's a Monday and we always hold staff meetings on Mondays. At 9:30. Provided circumstances don't get in the way, which they always do. Today's circumstance — no one can figure out where we're meeting, because technical editor Mark Vail has filled the conference room with digital pianos for next month's monster Buyer's Guide to pianos. Turns out the *Guitar Player* staff loaded a zillion guitar amps into the only other room in our building big enough to hold nine pianos and there's no way we're going to drive them off — a situation we'll not encounter again anytime soon, since shortly we'll be relocating to new digs 20 miles north in San Mateo, California.

Eagle-eyed sleuths may have already noticed that we started listing our new address on Borel Avenue last month, though as of now (late August) we haven't actually picked up shop and moved from beautiful downtown Cupertino. That won't happen until construction on our spiffy new soundproofed testing labs/recording studio is complete. We can't have our new neighbors — IBM — complaining about us rowdy musicians making a godawful racket.

Talk about a potential clash of corporate cultures. We get to inhabit (infest?) the first floor of an ultramodern six-story building, utilizing space once occupied by M&T Publishing, who were acquired by Miller Freeman, our parent corp. The remaining M&T folks have joined forces with our high-tech unit and live on the third floor of the Borel building putting out well-known computer titles, including *Dr. Dobb's Journal, Microsoft Journal, Mathmatica Journal,* and like that. Sandwiched between our corporate cousins and the staffs of *Keyboard, Guitar Player, Bass Player,* and *Best of Guitar Player* are the gray suits of IBM. This should make life for the building superintendent real interesting.

Of course, I'm speaking of events that have yet to occur. With luck, all will be extremely cool. At the very least, being in such close quarters with IBMers and folks who write about DOS, Windows, and OS/2 programming all day long will dampen the accusations from all those who still think we have a bias towards Apple gear by virtue of our proximity to the land of the Macintosh. After all, we did share a parking lot with a couple of guys named Jobs and Wozniak when they had just a handful of people working with them. They'd moved into a building that we built on Bandley Drive, making us Apple's landlords. And they didn't complain about the racket we made; they dropped by once a month for the jam session and BBQ in our warehouse. Somehow, I don't think the IBM guys are going to take to us in quite the same way.

How did I get off on this track anyway? I was going to use this staff meeting snafu thing to segue into the tale of the Ernest Gold story that finally found a home in this issue. This story's been written for months, but we kept pulling it issue after issue for lack of space. The first question anybody asks at staff meetings lately is, "We pull the Gold story yet?" But I blew the setup. It's not funny anymore. It *is* a great story, though. One of those timeless pieces that anyone interested in the art of scoring dramatic works, whether on film or on CD-ROM, can learn from.

I was also going to brilliantly blather about all the other cool stuff in this issue . . . Tom Darter's Scary Licks story (my personal favorite this month). Aikin's pet project, the Home Studio Solutions tome. The inside story on the first all-electronic album by *Nixon in China* composer John Adams. The Hornsby private lesson. The reviews. . . . But I'm all out of blather.

Enjoy.

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The Vapor Epidemic

Have you noticed that vaporware is everywhere? Most of the gear that interests me is "not in production yet." That includes a mythical 8-bus mixing console, a legendary 8-track digital multitrack machine, and a much-rumored digital effects processor. This nonsense only leads to conversations like the following (taken from real life):

Me: "Do you have the R7Z digital reverb unit?" Helpful Salesperson: "Sure. I can order one anytime." Me: "You mean you don't have one in stock?" H.S.: "Of course not, but I can get one if you want it. Believe me, it's a great unit." Me: "How would you know? You've never had one here." H.S. (very angry): "Do you really think we can stock everything that comes out?" Me: "Well, your ads say that you are the world's largest music store." H.S.: "Look, are you serious about buying one or not? I can have one here in a week." Me: "Of course I'm serious. Why do you think I called you?" H.S.: "Excellent. So what's your Visa number? I'll put you on the list." Me: "Wait a minute! I haven't even heard the unit!" H.S.: "That's the business. Do you want one or not?" Me: "Can't I hear one first?" H.S.: "Try calling the company. Maybe they can help you." Me: "I did try calling them the other day. The electronic phone system wouldn't help me unless I had an access code or an account number. Besides, they just make them. *You* sell them. I remember when I could come into your shop and demo a keyboard. . . ." H.S.: "That was then." Me: "Forget it."

No wonder so many people aren't spending money for new gear. Are you listening, retailers? Are you listening, manufacturers? There are fundamental gaps in the present system. We need to find a way for artists to let manufacturers know what they need, hear what they produce, and purchase the tools that fit their needs.

G. B.
Smithtown, NY

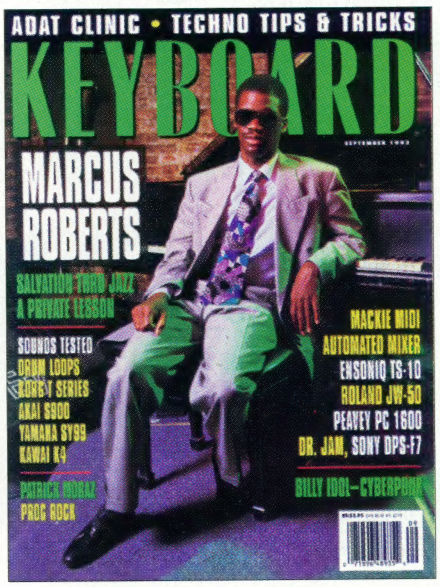
News from Nobodies

I can't believe I'm actually taking the time to write this letter, but Dominic Milano's Sept. '93 From the Editor column was simply too much bullshit. Do you and your staff truly believe that you are "neutral nobodies"? Or, rather, is that what you would have your readers think?

I received my first issue of *Keyboard* earlier this year. With each successive one, I became less satisfied. There seemed to be just too much advertising for my taste. I believe that roughly half of the Sept. '93 issue was ads. In other words, advertisers are at least half responsible for the end product that winds up in my mailbox each month. So it's not just a bunch of "nobodies" who put the magazine together. Certainly, they weren't "neutral." Decisions were made. Money changed hands. You and your staff became subjective at that point in time. If *Keyboard* is losing readers, don't cast the blame elsewhere. At least stop whining about it, for God's sake.

Incidentally, I could care less about your political leanings, but some people do. To suggest that those readers should throw their belief systems out the window for the sake of your magazine is laughable. Get a grip.

Rob Zimmerman
Lawrence, KS



I know exactly what Dominic Milano means about people who threaten the messenger rather than the message, and who project their own belief structures onto columnists and other media personalities. These are the antediluvian heifers who so believe in their own convictions that they are compelled to take action and do something about all the "subversive belief structures" emerging in the media. They relentlessly pound out hate mail to the outlets specifically designed for those who are mired in diversity of thought. These self-aggrandizing rodents should stay the hell away from the thought-provoking pages of *Keyboard* and bed down with their own kind in the medium specifically designed for *their* brand of mindless, couch-potato burpage: radio talk shows.

You certainly proved your neutrality to me. I personally found it fascinating that you could describe this breed of imbecile to a tee in ten column inches without once using the word "kook."

George Mihalakis
Milpitas, CA

Ensoniq TS-10

Jim Aikin and the rest of the tech staff at *Keyboard* must be suffering from some hearing loss. It seems they are so used to the ear-splitting crispness of today's synths that they can no longer appreciate sounds that have real warmth. I refer to Aikin's review of the Ensoniq TS-10 [Sept. '93], in which he describes its sound as "unquestionably" its weak link.

I purchased a TS-10 mainly *for* its sound. Unlike previous Ensoniq 'boards, this one has some guts. I am not pleased with some of its waveforms, especially the single acoustic piano waveform, which, to me, has a nasal quality. But the TS-10's overall sound is very refreshing. Furthermore, Aikin overlooked the instrument's brightness control, which lets you adjust the filter cutoff frequency and give the program some of that sparkle that he seems to like so much. There is no detailed description of this feature in his review or in the "Naked Truth" sidebar.

So what's the beef, Jim? If you want a synth that sounds like treble is the only part of its EQ section, pick up something like a Roland JV-80.

Alex Darsen
Los Angeles, CA

I bought my TS-10 because I was very impressed by its sounds and features. It wasn't until a minute ago that I read your review of the TS-10, and I was very surprised to see that you didn't think its sound quality is that great. I realize that you do encourage readers to do what I did — listen to the instruments ourselves and make our own judgments. Even though I am fearful that many potential buyers will not buy the TS-10 because of your review, I applaud the honesty of your reviews, and I refuse to shoot the messenger.

James Rosand
Port Angeles, WA

Michael Kamen

The interview with Michael Kamen [Sept. '93] was a blast of fresh air. I was especially thrilled to hear that Kamen uses the Kurzweil K250. Over the past eight years, I have built a business around scoring original music for feature film trailers and TV commercials. The sounds for trailer scores I wrote for all three *Lethal Weapons*, both *Die Hards*, *Red Heat*, *Point Break*, *A Few Good Men*, and around 60 other films were predominantly K250 internal and custom samples. The warmth of the K250 makes it a perfect blending tool that can round out the harsher digital samples and synth textures. Though I use SampleCell these days for its vast library of available sounds, the Kurz — going on its *ninth* year — is still on 25% of the tracks I create.

Finally, I second Kamen's assertion that the

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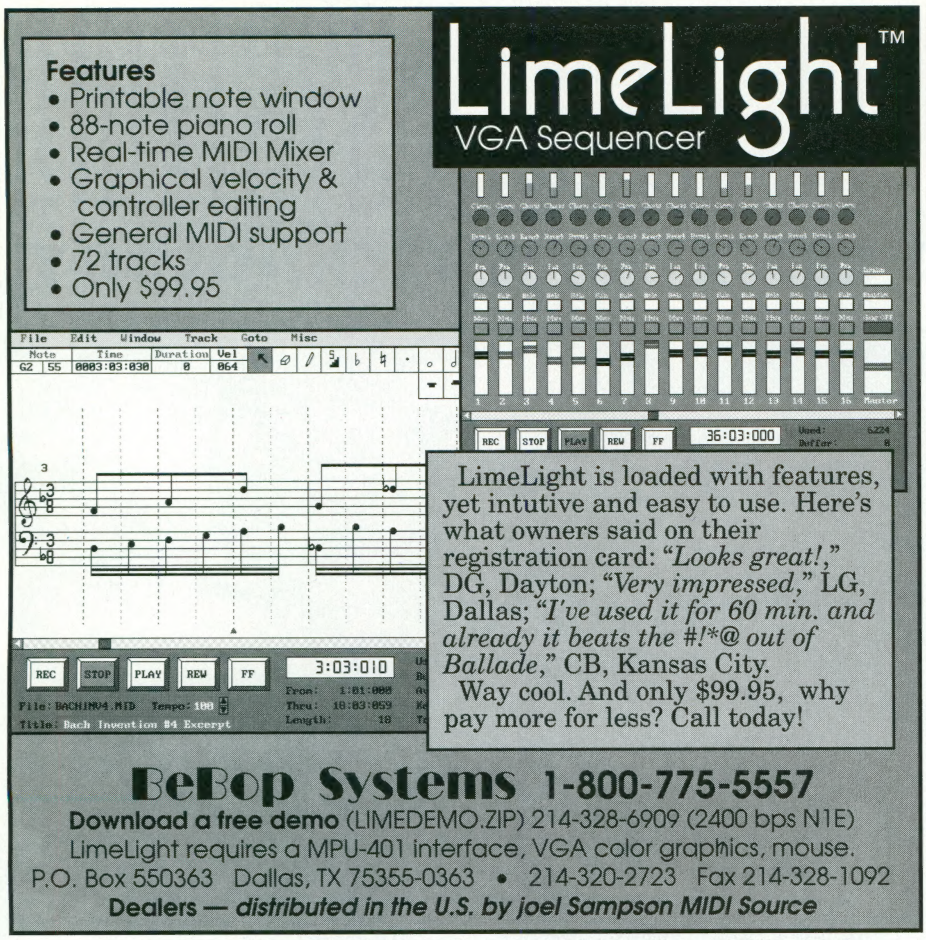
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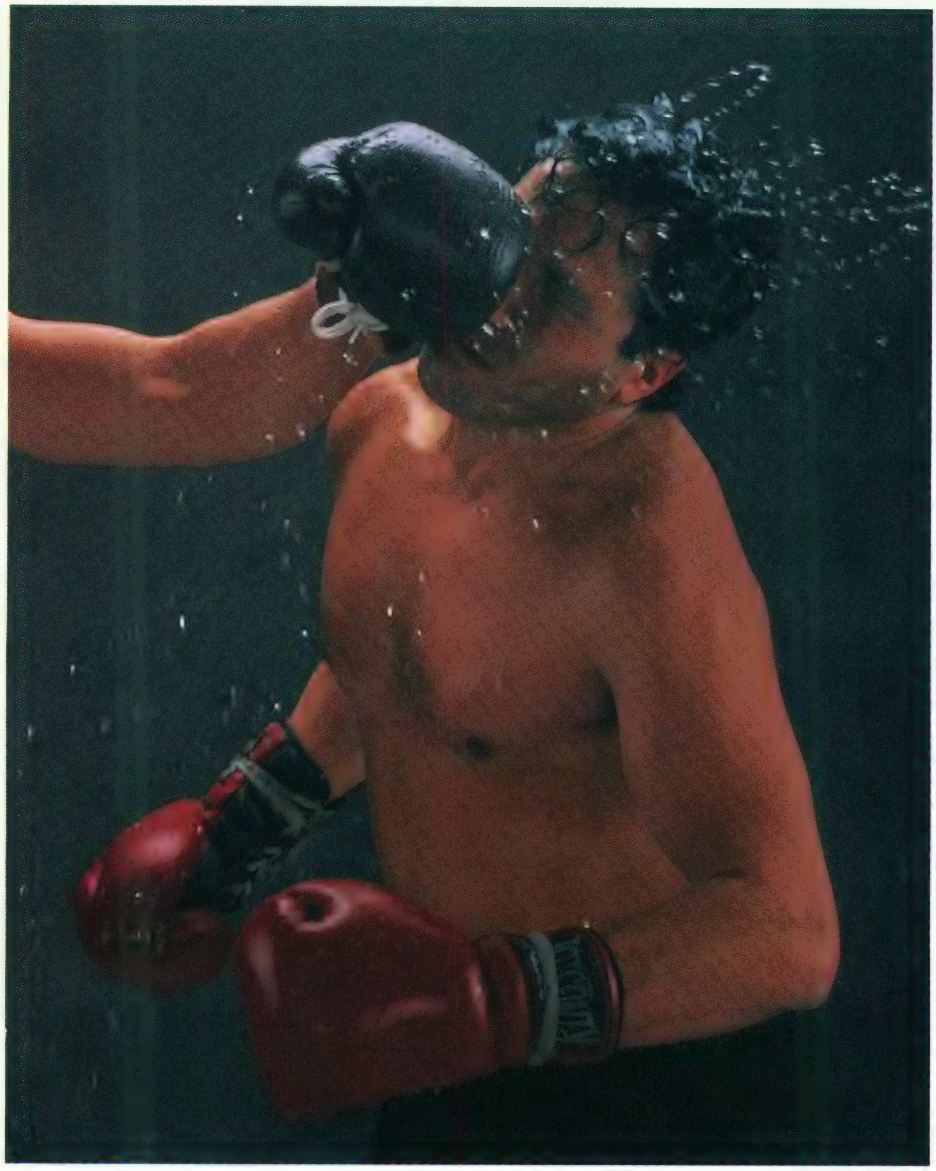
A SETUP FOR ANY BUDGET

home here, as would a used piece of high-end gear, such as an Akai S1000 or S1100, an E-mu EIII or Emax II, or a Roland S-770. If you go this route, make sure the sampler is loaded with at least 4Mb of RAM (preferably 8Mb or more) and that you have a large hard disk or removable media drive available for storing sample data.

For effects processing, you could move up to programmable reverb units such as Zoom's 9120 ($599), ART's Multiverb Alpha SE ($549), or Lexicon's LXP-1 ($549). You should also consider adding a compressor, such as the Alesis 3630 ($299) or dbx 266 ($299), which can aid immeasurably when it comes to laying vocals, bass, and guitar to tape.

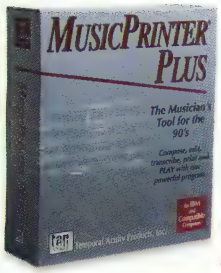
Speaking of which, reel-to-reel multitrack recorders offer considerably better fidelity and greater dynamic range (which means less noise) than cassette multitrack recorders. In the 1/4" tape format, it's hard to beat the Fostex R8 ($2,800); in the 1/2" format, the Tascam TSR-8 ($2,999) is a good choice. You'll also want to upgrade your stereo cassette mixdown deck to a consumer DAT deck, such as Sony's DTC-690 ($700). (Consumer decks are generally far less expensive than the pro decks, but their audio quality is nearly as good. You will, however, have to put up with the SCMS copy-protection scheme, which prevents you from making a digital copy of a digital copy.) Alternately, you could mix to a hard disk using a digital audio card that plugs into your computer. You may have to spend more money than you would on a DAT, but you'll be able to edit your mixes. For Mac, the choice is Digidesign's Audio Media II ($1,295); for the PC, it's Digital Audio Labs' CardD system ($795) or Turtle Beach's 56K ($1,295) or Multisound — an exceptional deal at $599 because the card also has a built-in Proteus and a MIDI interface. If you go for one of the new Macs, such as the Quadra 840AV or Centris 660AV ($4,069 and $2,489, respectively, for 8/240 configuration), that have built-in digital audio capabilities, you can use OSC's Deck II software ($299) to record into the computer without an added soundcard. Note, however, that the 660AV won't accept standard size NuBus cards, which precludes using certain products, such as Digidesign's SampleCell II.

Now is also the time to add a condenser mike, such as AKG's C 5600 ($579) or C 1000s



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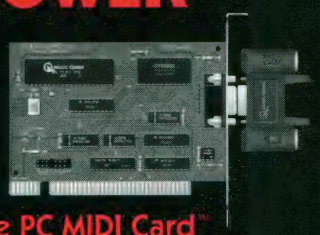
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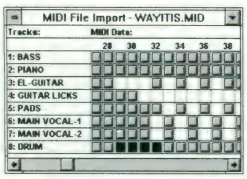
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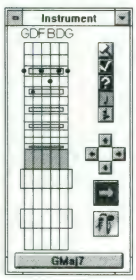
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A SETUP FOR ANY BUDGET

($429), Audio Technica's ATM 4430 ($699), or Beyerdynamic MCE 80 ($539) to your collection. These general-purpose mikes can help you get cleaner, richer vocals, fatter acoustic guitar sounds, and so on. Most condenser mikes require phantom power, so either buy a dedicated power-supply, or make sure your mixer has it built-in.

Oh yeah, the mixer. At the somewhat lower end of the price scale, the Mackie CR-1604 ($1,099) has become the industry standard, offering 16 input channels, built-in microphone preamps, phantom power, six aux sends, four stereo aux returns, and very good audio specs. There's even an automation upgrade available for it (Otto, $849). Other choices include Samson's MPL-2242 ($1,129) and DOD's 1642 ($1,099). Those of you with more to spend may want to check out a dedicated recording mixer — one that features tape returns and assignable sub-groups, such as the Soundcraft Spirit 1682 ($3,995). Mackie also has a new series of 8-bus consoles that promise to both perform well and set some new standards for price/performance.

SYSTEM FOUR: PLAYIN' IN THE BIG LEAGUES

Your home studio may never rival the famed Record Plant, but you can certainly equip it with some cool toys — er, very qualified equipment. And with the additions described here, all of which are considered "pro level," you should be able to produce CD-quality recordings, suitable for release to the rest of the world. Just hope that one of those releases is a hit; you'll need it to pay for all this stuff.

First the recording media. We'll base our setup on Digidesign hard disk recording technology — Pro Tools for the Mac or Session 8 for the PC. A basic Pro Tools setup ($5,995 for a 4-track system) consists of the Audio Interface, which handles analog and digital audio input and output, the Audio Card, a Nubus card that links the computer to the outside and performs all of the DSP functions, and the Pro Tools software, which is used to record and edit the audio data. The computer must be at least a Mac IIci. Session 8 is a non-expandable 8-track system ($3,995). The XL version ($5,995) uses the higher-quality Pro Tools Audio Interface for the system's front end, but

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A SETUP FOR ANY BUDGET

doesn't include the analog mixer that comes with the standard model. For any disk-based recording system, you need a big honkin' hard disk — 1.2 gigabyte highly recommended. Disk prices are changing too dramatically to even quote; check with Digidesign for recommended models, then shop around.

One advantage of going with a hard disk recording system is that you can use a single software program to record and edit digital audio data along with your MIDI sequence data. Presently, three companies offer these types of combined programs. And as luck would have it, they're all for the Mac: Opcode's Studio Vision ($995), Mark of the Unicorn's Digital Performer ($895), and Steinberg/Jones' Cubase Audio ($999). (Emagic is planning to add digital audio capabilities to Notator Logic.) If you don't need to edit all your data within one program, you can use OSC's Deck II (instead of the Pro Tools software) for the audio chores; it has "hooks" to dedicated MIDI sequencers — notably the company's own Metro program. While we're talking software: Operators of large MIDI systems usually can benefit from a "universal" editor/librarian. For the Mac, the choices are Opcode's Galaxy Plus Editors ($400) and MOTU's Unisyn ($395). For the PC, Dr. T's X-oR ($325) is about the only game in town.

For tape-based systems, the only way to go is digital. You probably haven't heard of the Alesis ADAT ($3,995), a digital 8-track recorder based on S-VHS technology, but it's getting pretty popular. You can expand an ADAT system to 128 tracks (16 machines running synchronously), so there's plenty of room to grow. And Digidesign is developing a device that will allow you to dump audio data between the ADAT and Pro Tools entirely in the digital domain. It will also let you lock a Pro Tools system to the ADAT's internal sync code. This means you can record on tape, edit in the computer, and mix to either tape or the computer — pretty cool stuff. Another digital 8-track recorder, the Tascam DA-88 ($4,499), was recently introduced. It uses 8mm tape for the recording medium and, like the ADAT, can be expanded to a 128-track system. If you want to sync a DA-88 to Pro Tools, just stripe

Continued on page 134

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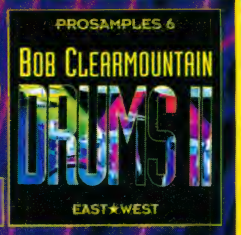
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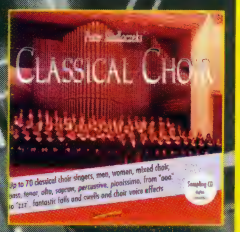


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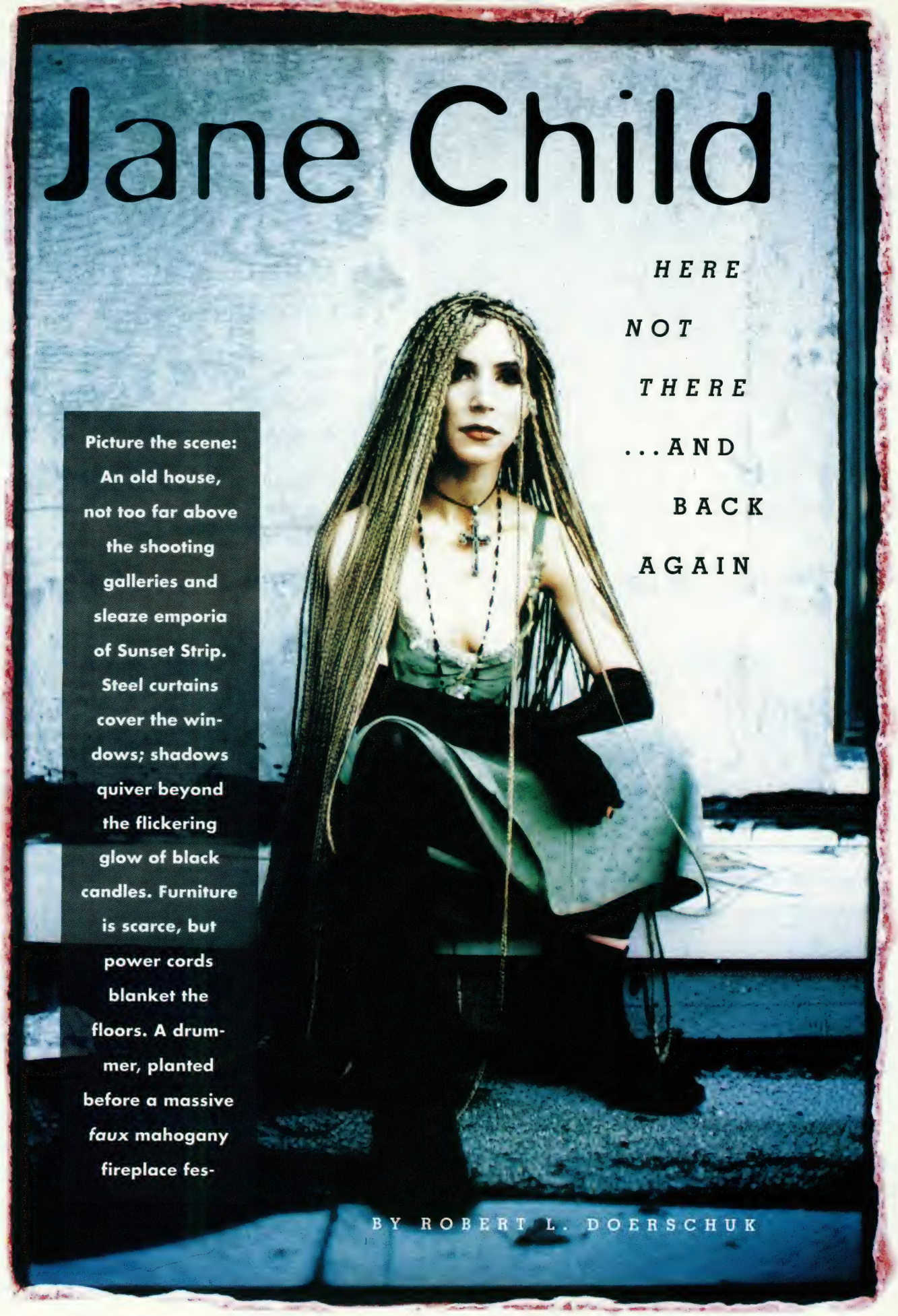
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Jane Child

HERE NOT THERE ...AND BACK AGAIN



Picture the scene: An old house, not too far above the shooting galleries and sleaze emporia of Sunset Strip. Steel curtains cover the windows; shadows quiver beyond the flickering glow of black candles. Furniture is scarce, but power cords blanket the floors. A drummer, planted before a massive *faux* mahogany fireplace fes-

BY ROBERT L. DOERSCHUK

PHOTOGRPHY: MERLYN ROSENBERG

Jane Child

tooned with serpentine carvings, slams his beat in the living room. Out in the den, the guitarist rips buzzsaw riffs. Synths litter the dining room. And in the kitchen, amidst a clutter of refrigerator magnets, dishes, and books, with a cup of vanilla-flavored coffee steaming nearby, Jane Child is wailing a Hindu prayer at the top of her lungs.

Such was life in the Child household for something like a year and a half. While putting together *Here Not There*, the follow-up to her 1990 eponymous debut album, she lived in the eye of a musical hurricane. A maelstrom of friends, family, and at least one occasionally peevish spirit swirled around her night and day. Marathon sessions stretched past sunset and into the dawn. Eventually, of course, the ordeal came to an end. The musicians went home, the carpet was rolled back over the living room floor, the Victorian settee returned to its place near the weird fireplace. Life settled back to normal for Jane, her neighbors, and the ghost of Vidah Bickford.

"Her name is pronounced *Vah*-dah," Child corrects us. "I went to the Hollywood Library to read up on her. That's how I found out that she was born with the name Ethel Lucretia Olcott, but she and her husband took on the astrological names of Vidah and Zar."

We're in the living room, now airy and open; its unshuttered windows overlook the ruins of Hollywood. Child leads us into a darker area, the dining room. Here, alongside the Korg T1, Hammond B-3, Yamaha DX7, Sequential Prophet-VS, Casio CZ-1000, Roland S-50, Oberheim Matrix-6, and other 'boards, her mainstay Fairlight gleams in the gloom.

"I had the house blacked off when we were making the record," she continues. "No light, no air. It just got stranger and stranger, especially in here. I would be sitting at the Fairlight, and suddenly I'd feel her hands on my shoulders. One time she blew right into my face. She was *this close*, and I screamed. I had to wait outside until somebody came. Finally, at a certain point, I just said, 'This is *my* house now.' I opened it up, and I burned white candles. Somebody told me to also leave out dishes of kosher rock salt, so I did that in all the places that felt weird. Then, over a couple of days, the salt started creeping up the side of the dishes. By the fourth day, the

GO XII By Ricky Hyslop

Go XII is a musical gift to Jane Child from her father, Canadian composer John Richmond, who wrote under the name Ricky Hyslop. "My dad prides himself on being an individual. He is fearless in his lifestyle and in his music. He's my greatest influence." Hyslop created this piece for her to play in a piano competition nearly 20 years ago. Written in classic serial form, it states a 12-tone row in bars 1-3 and introduces the retrograde as a second theme in bar 18. In addition to composing soundtracks, string quartets, and other works, Hyslop performed as concertmaster with various Canadian orchestras, played jazz gigs, and did arrangements for a weeky radio show on the CBC. But this daring kind of work "represented the side of my dad's music that I loved best," Child says. "Besides, it was kind of fun to slam the lid shut on the piano at the end." Incidentally, Jane didn't win this particular competition, but she did score a scholarship later that same year with a performance of this piece.



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salt was gone. There's no explanation; the sunlight wouldn't have made it evaporate. But whatever the reason, it felt better after that."

We first encountered Vidah Bickford, deceased studio guitarist, in our June '90 cover story on Child. Apparently, she's still hanging around her old digs. But Child is more than a match for her spectral housemate. She's a spectacular apparition in her own way: diminutive, almost fragile, with lower lip neatly pierced, nails dabbed black, and dusky braided blonde hair spilling clear down to the floor. In all other respects — the high standards she sets for herself, the determination with which she pursues her goals, the turbulent intensity of her conversation — there is nothing delicate or incorporeal about her.

Child's tough, stubborn expressivity unifies *Here Not There*. From the tight synth motif of "All I Do" to the trance-like ululations on "Sarasvati," Child keeps a tight control over every musical nuance. Her vocal pads — as many as five parts, each overdubbed four times — soar, twist, and gliss in perfect sync. Even with bassist/guitarist James Harrah, drummer Tal Bergman, and Jane's brothers Ricky and Bryan, both guitarists, fleshing out most of the arrangements, her keyboards lay the foundation of *Here Not There*. Though there's more of a band feel on this album than on the totally solo debut release, there's no doubt who is in charge, and plenty of evidence that Child remains a commanding player and arranger.

To pick just one example, compare her solos on "Sarasvati" and, from *Jane Child*, "Don't Wanna Fall in Love," transcribed in the June '90 story. She plays both with deft technique on keys and pitch-wheel. Her improvisational style is clear and direct; each solo is a crescendo, building to a feverish finish. If anything, the "Sarasvati" solo is even hotter; its dental-drill timbre slashes through a 6/8 dervish groove with keening long notes that scale toward an ecstatic climax. It blows by quickly — too quickly — but does the job of kicking the tune into a finale that's almost too big for today's pop aesthetic.

All was quiet, however, when we met Child at her place one afternoon last August. A white bust of Beethoven and an iconic depiction of the Virgin watched silently as we began digging into *Here Not There*. Apparently, Vidah was taking the day off.

• • • •

What are the essential differences be-



Jane Child

tween your first album and Here Not There*?*

The second album represents freedom to me, because the first one was hellish to make. I demoed all the songs on the first record, I figured out all my own arrangements — all the things that are part of making a record. By comparison, the second record is more spontaneous. I didn't demo anything for *Here Not There*. In fact, I never want to demo anything again, because I get bored too fast. If I have to go over something a few times, I'll wind up changing the melody.

In other words, from now on you'll only record each song once?

That's right. I won't do a sketch of it in another format. The joy of a song is always in the demo. There's always a charm to the demo, no matter how crude it is, that should remain the true form of the song.

You referred to your "anal perfectionism" in our first interview. . . .

I'm trying to break myself of that.

Well, the new album certainly doesn't sound loose or sloppy in comparison to the first one.

But it is sloppier and looser. I wanted more spontaneity. I didn't double any of my lead vocals; I just let myself sing. A lot of the vocals on the rock stuff were scratch vocals that we did when we cut the basic tracks. Because of my inexperience at recording with a live band, I had no idea that I would be as energized as I was by the players. So there I was, screaming into a [Shure] SM-58 in the kitchen, with no isolation.

You don't have a traditional home studio, so in effect you turned your entire home into a studio for these sessions.

Right. During the time it took me to make this record, it looked like hell here. We were eating off road cases. Guitars and food were everywhere.

Where did you cut the keyboard parts?

Mostly in the dining room, which is where my keyboard room normally is; I don't have a lot of gala dinner parties, so it doesn't matter. When we did the Hammond stuff, we had the Leslie in the kitchen. Then we rolled the carpet back in the living room and put it there. We had tie lines to the *ad hoc* control room, which was in the sun room.

You did your first album entirely on your own. What were the disadvantages to cutting Here Not There *with other musicians?*

I don't feel that there were any disadvantages.

You wouldn't do another album solo?

The first album was the first album. That's the space I was in then, although I come from playing in bands, so working solo wasn't the only thing I'd ever known. When I used to play violin, I loved being part of an orchestra. Being a keyboard player, by comparison, is a pretty lonely thing. I can't even listen to my first record now. It really bothers me. It feels tight, like petrified wood. There's no air space.

What else was different about the second album?

I recorded the first one digitally, and I didn't like it. Even though I've got a digital multitrack, I went analog on this record, which gave me what I wanted. The digital was cold, too glassy; it put my teeth on edge. To me, the bottom end is different with analog. It's warmer and fatter, especially for funk.

Did you use basically the same keyboards the second time around?

I used the Korg T1 quite a bit as a sound source. I never used the sequencer on the T1, but because the instrument is multitimbral it was easy for me to figure out my programs for each song and write them in as the title [of the multi setup]. I also used the [Sequential] Six-Trak, which is a pretty heavy little guy. And I used my rack-mount Minimoog a lot. Love it, love it, love it; I gotta buy more of those.

Did you use it for bass lines?

Yeah, although I didn't do, like, six tracks of bass, which I did on the first album. But I did do three, at least. Sometimes I'd change the waveform when doubling the bass line. There's nothing better than a Minimoog for that kind of stuff.

The bass line on "Calling" is especially active.

That's predominantly the Minimoog; I used the Fairlight to control it. But I can't take all the credit for the keyboards in "Calling." I cowrote that song with James Harrah. He's a great guitar player, but he's also one of those people who can sit down at the piano and play with the most beautiful, natural touch. So we worked out a lot of those parts together.

You used a lot of Fairlight on the first album.

I used it again here, but I didn't rely as heavily on it. For any kind of prep work before playing live, I would do my sketches on the Fairlight. For example, I had very specific things I wanted [drummer] Tal Bergman to play, which were maybe not what a drummer would naturally play. Tal also contributed to the percussion break in the middle section of "Sarasvati." That was my one synth solo on this record; I kept it down to one.

Didn't you play an eight-bar solo in "Calling"?

That was mainly the melody. I had planned for one in "All I Do," but I let James play a guitar solo instead because it's probably going to be a single and I didn't want to hear, "Oh, here's Jane again, with another synth solo in a pop song!"

Do you think that synth solos undermine the commercial quality of a pop song?

I don't know about that. I love hearing keyboard solos.

But you didn't want to duplicate what you did on "Don't Wanna Fall in Love"?

I really didn't. When I started cutting "All I Do," I could tell pretty early on that it was shaping up as something that would stick in people's heads. Still, I know what you mean about people not taking the keyboard seriously as a solo instrument. On piano, you're somewhat limited. At least the pitch wheel gives you something you can't get on a piano. But I've been playing my guitar lately, and it's so much more expressive.

The title cut was the first single off the album. That really seems like an unlikely choice.

Well, this fucking radio format thing is driving me crazy. We went back and forth about the singles. At first, people at Warner Bros. were leaning toward "Mona Lisa Smiles." I was very excited about that for a number of reasons. But what ensued was, I'm a girl, and this is an AOR track, and they don't like girls to sound like I did on "Mona Lisa Smiles" for AOR. I sounded pretty strong, kind of threatening. It's interesting that on the one they chose I sound very approachable and not threatening. That was the main reason, along with something about not wanting me to have a rock image. I have to admit that I was going crazy while I was making this record, because this is what was coming out of me. I wrote "Here Not There," "All I Do," "Mona Lisa," and "Sshhh" on the same night — at least I got the germs of the songs, although I did complete "Here Not There." I wrote all over the map that night, so I was thinking, "I've got to focus. I've got to either make an entire record of the funk stuff or the rock." But I did the record the way I did because my final analysis was, "Okay. You're an artist, so your job is to reveal as much of yourself as you can. And *this* is an honest portrayal of who I am." You're not always in one mood, so my writing isn't always in one mood. But there were times, particularly when I was doing the vocals, when the funk stuff just repulsed me, and on other nights I couldn't imagine wanting to scream like I had to on the rock cuts.

Certainly there are several cuts on your album that would qualify as commercial pop material. . . .

There are four.

And "Here Not There" . . .

. . . is so small. It starts with such a humble, soothing, intimate sound, which I got from this little Roland keyboard with stereo

speakers. The song is about ignorance, about being surrounded by chaos in the world and in our lives. But unless the problems are in our face and threatening us very directly, we really don't give a shit. At the time I wrote this, the Gulf War was on TV, and there were gunshots outside my house, as there often are in this neighborhood. There's the AIDS epidemic, and the water shortage, and all those people out of work. It struck me that until we can't have a shower when we want one, do we really care? Or do we just pay lip service to solving the problems? So I took on this wall of just being unaffected. . . . I'm sorry. I'm off on a tangent. Let's talk about keyboards [*laughs*].

Okay. Why did you add bird sounds to this cut?

The birds are from this cartoon I saw in my head: birds flying around my head. It made such a vivid picture of wide-eyed ignorance and turning a blind eye. I had this great sample of birds, so I employed it. Thank you, Prosonus.

What about that "Magical Mystery Tour" calliope sound?

I think that's the Oberheim Matrix-6.

Perhaps because you brought in other musicians for these sessions, Here Not There *seems less saturated with keyboards than the first album.*

I did record one song that had no keyboards on it — "No Solution." It's the B side of "All I Do," although it didn't make the album. I sampled one Ministry guitar thing for it, but that's it.

"Monument" doesn't have a very high keyboard profile.

My brother Ricky demoed it with just guitar and drum machine. I didn't want to step on his thing, but I had a vision of my own for it: I heard a beautiful string line that answers the vocal on the verse. I have a lot of respect for Ricky's and Bryan's songs, but this was my record. I told both of them that if they didn't like what I did with their songs, I wouldn't release them. Fortunately, that wasn't a problem. "Step Out of Time," which Bryan wrote, also didn't have any keyboards on it originally, although I played B-3 on it.

It was mixed pretty low.

Lower than I thought it would be [*laughs ironically*]. You know, when I was 15 and in my first rock and roll band, I had a B-3 and one of those big-ass Leslies. But I hadn't played a Hammond in years when we started this album. I did a couple of passes on the B-3 for "Step Out of Time," and there was literally blood on the keys from all the glisses I was doing. I just tore up my fingers; I had Band-Aids on every one. I hadn't gotten my B-3 at that point. Instead, I rented this *pig* of a B-3 from SIR [Studio Instrument Rentals]. It sounded great — nasty, dirty.

Why not just record the parts on, say, a Hammond XB-2?

I don't care what anybody says: The XB-2 doesn't sound as good. Besides, it feels good to sit on that furniture [*i.e.*, the B-3 bench]; it makes you feel like you're playing an instrument. I'm turning into a purist in my old age. For this one thing I'm planning to do for the next album, I'm gonna get a real harpsichord. I have some great harpsichord sounds in my keyboards, but you just don't hear the *wood*.

Where else did you use the B-3?

On "Mona Lisa Smiles," "Sshhh," "I Do Not Feel as You Do," which also has acoustic piano. I did a lot of Hammond on this record.

You used it mainly as one component in a broader textural scheme, rather than just blast out front with it.

I *should* have put it more out front. That's how I played the parts. The problem is how I'm writing now. I'm trying to simple my writing down. I'm finding beauty in major triads. I've always liked juicy chords, but there's something to be said for taking a simpler approach to writing.

You had some nice arco string effects on the second and third beats of each 3/8 bar on "I Do Not Feel as You Do."

You know what that was? That's a celli part that I had James play on guitar!

With a real piano chording on each beat?

Yes, this Yamaha right here in my living room. I got the piano halfway through the record; it was the happiest day of my life, I was so thrilled. It came from Amiga Studios. When they went out of business, we got in there and bought it for a real good price. It's a famous piano: All the Warner Bros. artists have played it — Rickie Lee Jones, Randy Newman . . . Frank Sinatra! Eddie Van Halen came over here, and he said, "I know that piano!" But we had a lot of trouble finding the right way to record it. Before I owned this one, I tried the piano part for "I Do Not Feel" at a studio where they had a Yamaha C7. I hated the way it sounded, because Yamahas tend to sound brittle on the top end; I wanted a warmer, more true piano sound. So when we got this one, I said, "Let's give it a shot." It took us all night; I remember finally getting it at six in the morning.

Did you ever consider using a piano sample, or even doubling the acoustic with a sample?

No. I have some good piano sounds, but they're not the same as the real thing. There's no resonance. Whenever I use a piano sound, it's got to be a real piano. That's why I even went out of this house before I got this piano, even though I really wanted to make the whole record in here.

Let's talk about your compositional approach. More than most songwriters, you seem fascinated by diminished chords. They crop up in "Sarasvati," "Mona Lisa Smiles," "Monument," . . . .

That nasty tritone. It's from this haunted house. As soon as I moved in here, it was like [*hums spooky gliss, from tonic to flat fifth*].

Though used sparingly, your diminished chords create a lingering impression of instability and irresolution.

Why, thank you [*laughs*]! Actually, "Sshhh" is my psychosis, although I didn't really use diminished chords in that one. I thought this was lighter than the first record, but people have told me how dark it is.

There are plenty of light moments — "All I Do," for instance.

That one just about floats away, doesn't it?

You played that in F. *So why did you keep singing the* A *even when the chord changes led to a* D♭*?*

Because it's sick. I don't know if people are going to get it on the radio; if it is a pop hit — oh, God [*knocks wood*] — and it does get on the radio, they'll fade that hook that keeps going and going. But on the album, it's a musical trick, because the song is about being obsessed, and it's this same dissonance, over and over and over. So aren't I clever [*laughs*]?

Certainly the synth sound on "All I Do" is radio-friendly.

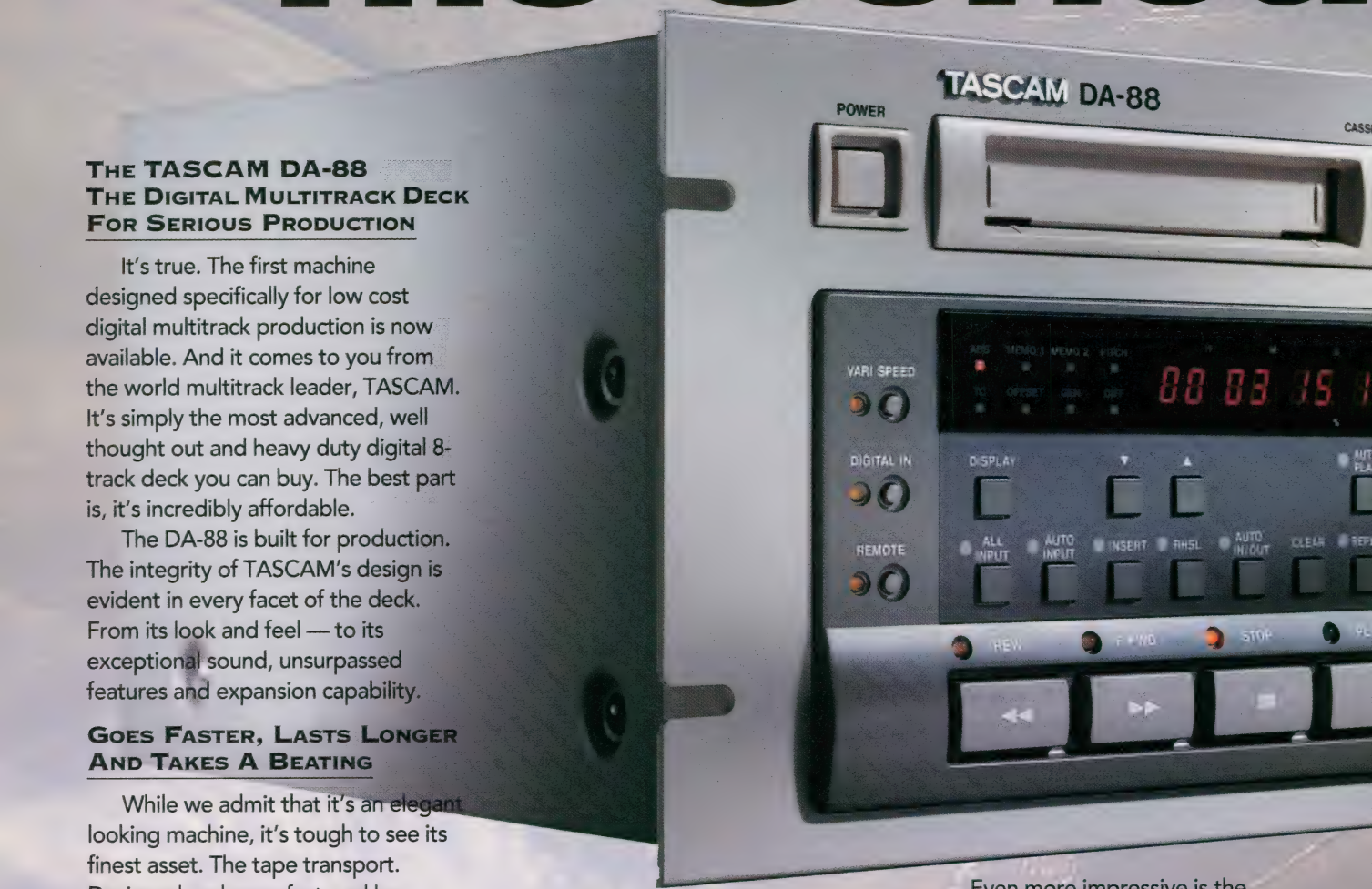
Yeah, but there's this pulse in "All I Do" that's really annoying. I don't know if you can detect it; it should be felt rather than heard, although you can hear it during the breakdown at the end. I put that together on the Prophet-VS and the Matrix-6. *That* was some synthesis. You think I could get those decays again? Or those sweeps? I just about lost my mind getting all that. It's always those little sounds that kill you. And then I changed the key! In fact, I changed the key three times! So I had to get that sound a couple of times. Then I found the arrangement because the syncopation in the melody of the hook put me off balance, and I wanted to keep a nice 4/4 going. I tried to offset that jarring syncopation with vocal counterpoint in the background, so you would feel the syncopations without being jostled by them.

Those background vocals . . .

. . . are all live. They're not samples. I worked so hard on those *aahh*s. That's a lot of air to push out. And it's quadrupled in five parts, so we've got 20 tracks of *aahh*. I like having five parts, with the top and bottom parts doubled. The way I write these backgrounds is really an extension of my being a keyboard player. They're obviously a key-

Continued on page 99

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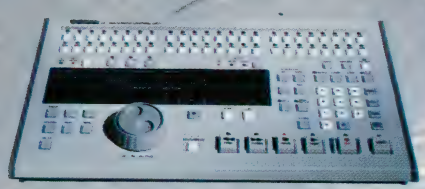
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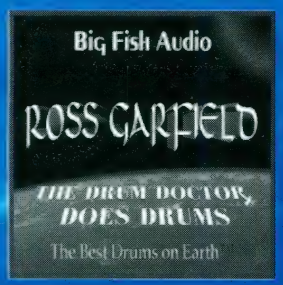
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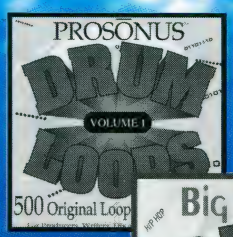
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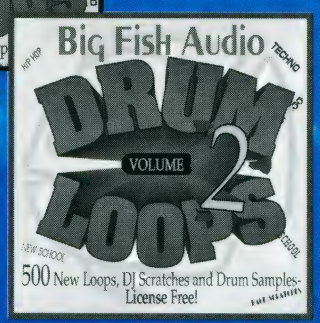
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Jane Child

Continued from page 95

board player's voicings.

How do you arrange your harmony overdubs?

I've learned a system. A lot of times, I used to write it out and start doing it. Then, 20 tracks later, I'd go, "I don't know." So now I do a five-part sketch: I'll bang out five tracks, hear how it sounds, and then start overdubbing. I really need to sing my own backgrounds, because I can blend with myself and I know all those little inflections [*sings*]: "Nothing ventured, nothing gained." You can only get that kind of nuance from one person.

Are there any sampled vocals?

There's one in "Sshhh," but usually when I try the easy way out, using lots of Fairlight choir samples, it doesn't sound any good. I always end up singing.

What did you use for the intro synth sound on "Sshhh"?

Probably the VS, the Matrix-6, and the T1.

What gave you the toy piano sound?

I think it was the Oberheim, although I've been looking for a real toy piano. I had two when I was a kid.

Dynamics, especially the false crescendoes, seem to be the key to "Sshhh."

Well, the song is called "Sshhh," and I wanted to say *sshhh* to my psychosis. I tried to serve the lyrics, so I started out kind of controlled. Then the voice in my head got louder and louder, and the song got a little more crazy. Then I tried to control myself, so I brought it down. It was the most dynamic song on the album, and probably the toughest to do.

The nonstop guitar part that runs through that song must represent some other psychotic element.

It's just an annoyance. Have you ever had aural hallucinations? I've had them. When I first moved in here, I heard chainsaws outside. Also, when I was at my parents' house in Toronto, I was sleeping on the couch and I heard this beautiful choir outside of my head. It sounded like the voices of angels, coming from the hallway. So I wanted to give a sense that there's a lot going on in my head, though they're still aural hallucinations.

Even so, "Sshhh" probably could have worked just as well without the annoying guitar.

You know, I found a take of that where

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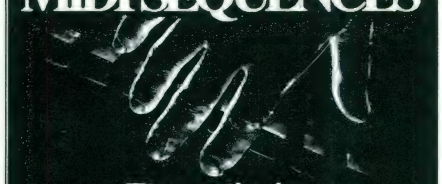
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Jane Child

we were just fucking around with acoustic guitar, and it's so lovely and quiet. I cried when I heard it: "Oh, God. Listen to what it could have been." The way it turned out was one way, but it was very haunting with just acoustic guitar too.

"Sarasvati" is obviously the big song on this album.

It was nine minutes, but they made me cut it down. I have no idea why I wrote that song. I don't know how it turned into this big thing.

It seems to reflect the interest in Indian music that you mentioned in your first Keyboard *interview.*

I had enough material to make an entire record of Indian-type stuff. I've done a lot of reading. I have a theory book of all the ragas, *Music of the Hindustan*. I absorbed what I needed from it, then I threw it away and just wrote. So whether what I did is authentic or traditional, I don't know. One thing I did had the working title "Hindu Rap." It was very Indian, but I sampled Nuserat Fete Ali Khan, the great Sufi singer, and turned it into a rap. It didn't make the record, but that was really my first vision for this record, since I was so enthralled with the Indian stuff. "Mona Lisa" was part of that too, but with more of a metal rock feel.

The eighth-note pulse on "Mona Lisa Smiles" . . .

. . . was sitar. See, ignorance affords you some opportunities, because I have no idea how a real sitar player would do it. I called L. Subramaniam when I started this record, and he said he would come down and actually play that part for me. But I had this great sitar sample that really became part of the song; I also used the sitar on the T1, along with a koto sound. The big drone came from the T1 too. When I started working on the Indian stuff, I retuned the scale on the T1; I flattened the sixth and did some other quarter-tone adjustments. Then I called a friend of Tal's, Aaron Gross, a really great Israeli keyboardist, and played them what I was working on. They said it sounded good, and since they're from that part of the world, I figured, "Okay, if they endorse it, it doesn't sound like bullshit."

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Did you use alternative tunings during your "Sarasvati" solo?

No, I just winged it. I don't remember what keyboard I played — something with a pitch wheel — but it was driving the Minimoog through a Marshall amp. I actually extended the section where I played the solo, because after I first cut it, I decided I wanted it to say more. It didn't have time to build. It needed to establish a different feel, and then the solo would take over. The way it's mixed, the solo starts in the fog, then it comes closer and closer.

Was it improvised?

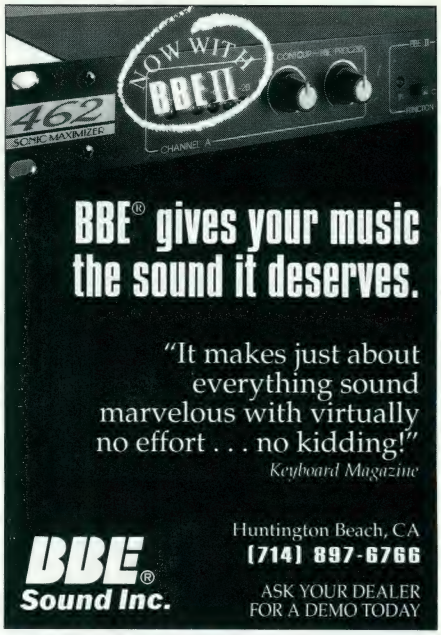
Just about completely. I worked out the basic ideas, then I cut it pretty quickly and ended it with that lick I can't get rid of [*laughs*]. In retrospect, I don't think I was feeling the rhythm properly. I was still feeling that 4/4 from the song. By the time I hit the high pitch-bend section, I started locking better into the 6/8.

This was the only cut on the album that had low male vocals in the background.

You know what that is? When I went to Japan last year, I visited Kyoto. I had to have special permission to go to this very sacred place. It was fantastic, so ancient. We went to this temple, then these Buddhist monks came out with the drum and the gong, and they began to chant. I was trying to take notes; we couldn't record it, of course. But later this guy from my Japanese record company turns up with this tape of these monks chanting! It was just incredible. They start off low and slow, then they get a little faster and a little higher. Now, when I was working on "Sarasvati," I felt that something was missing; there was this ostinato figure that made the harmony rough. As luck would have it, I found two bars from the tape of the monks where the tempo and the pitch collided with what I was doing. I slowed it down a bit. Then, as soon as I sampled the monks and put them into my song, everything fell together. It was the missing piece of the puzzle.

Why did you double most of your lead vocals on "Sarasvati" with a unison synth line?

It's like outlining a picture in black and then coloring it in. I thought of the verse vocal as almost an orchestral part, as opposed to the vocal in the chorus, which is very free-flowing and improvised. So I underscored it with instruments. Besides, I'm not a great Sufi singer, especially in this one really high section where I'm singing a Hindu prayer;







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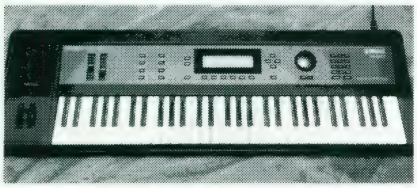
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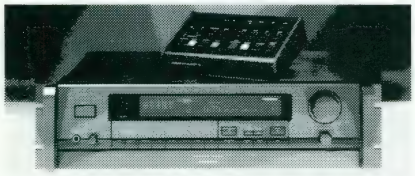
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Jane Child

it's hard to get all those inflections, so the instrumental line helped.

How much did the possibility of doing this material live guide you in these sessions?

I wish it had guided me more in putting all those vocals together. I'll have to take out a lot of people to do this properly — a lot of singers, at least two keyboard players. I would like to play live as much as I possibly can, but I wrote bitches of parts for me to sing. Songs like "I Do Not Feel" and stuff from my first album like "You're My Religion Now" I'd like to do on piano. I'd like to play some B-3, but I don't know if it would serve the songs well. On some of the funk stuff, though, I'm planning to extend things and solo on my [Yamaha] KX5.

Why that portable controller?

It's small. I mean, even my Strat dwarfs me [*laughs*].

How will you cut down your live setup?

Well, I'll be taking an XB-2 instead of the B-3.

What about having a real piano?

[*Sighs.*] I can't. I mean, I'll still have a real piano when I do TV shows and stuff, but it's not going to be a huge stadium tour with a piano tuner for every gig. Maybe we'll get a Korg SG-1 and build it into a frame that looks like a real piano, because I love the furniture so much.

Will you miss seeing Vidah when you're on the road?

[*Laughs.*] You know, I've never seen a manifestation, like a physical form. I mostly saw masses. Like once, I was washing the dishes. I was in that kind of state I get into when I'm writing something when I turned around and saw this purple mass coming from the stairs. I was very calm; it didn't seem threatening. I turned toward it, and it went back up the stairs.

And you think that was her?

I do, because when I play Bach on the piano it feels nice in here, loving and nurturing. But when I'm whacking away on guitar, I don't think she likes it. I don't know how much of this I believe, but there are times when I feel extremely panicked, and sounds will follow me all around the house.

Perhaps she'd ease up if you gave her some sort of album credit as a collaborator.

Well, you know, I just wrote this thing that sounds very medieval. And just today I started thinking, "Hmm. I wonder where *that* came from?"

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JOHN ADAMS

The Composer of Nixon in China & The Death of Klinghoffer Releases His First All-Electronic Album, Created Entirely in His Home MIDI Studio

BY TOM DARTER

The plot was right out of the newspaper headlines. As a review in The New Yorker pointed out, many of the real-life subjects of the work could

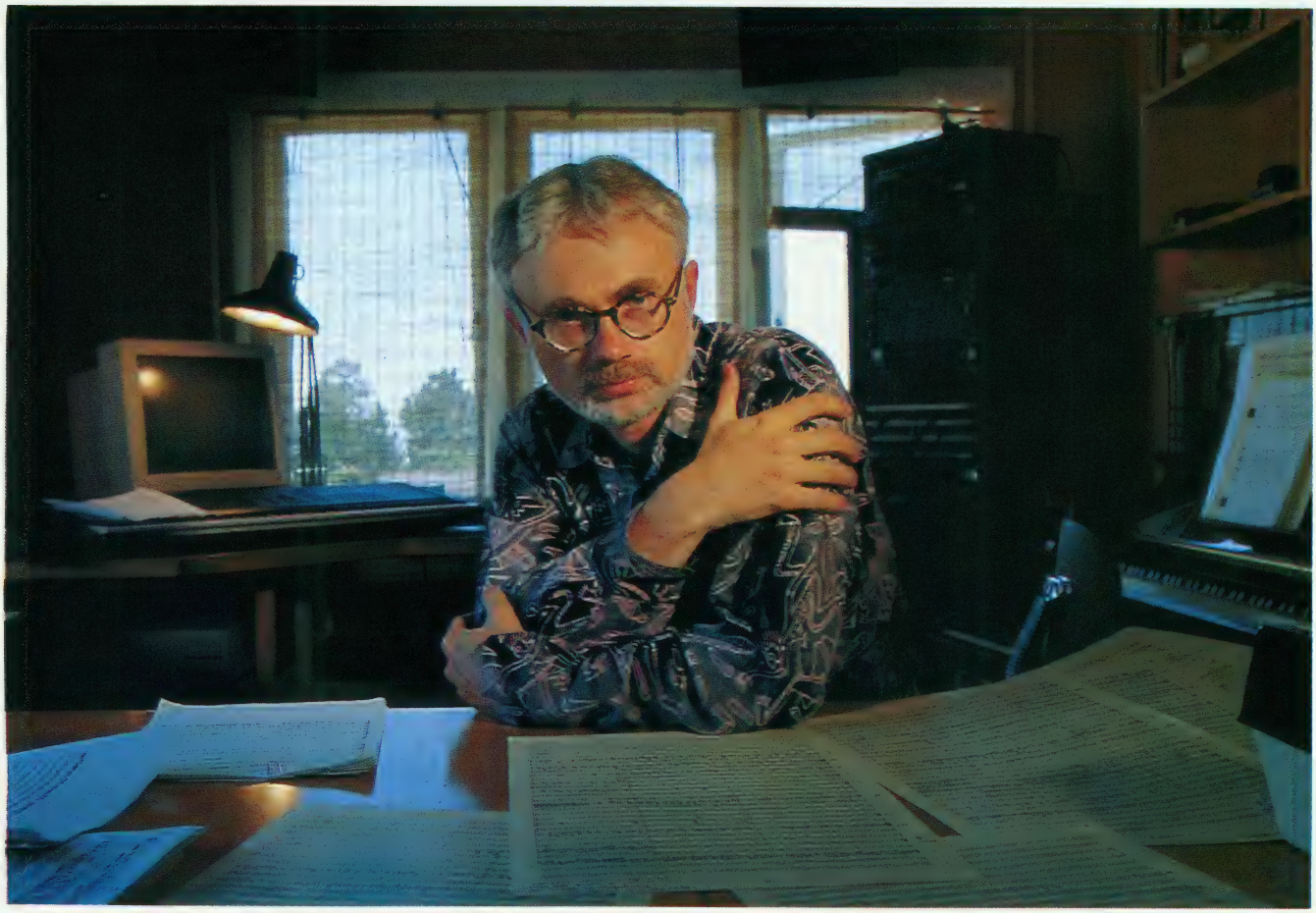
have watched the world premiere. The subject matter was controversial.

Sounds familiar. But we're not talking about a TV movie here; we're talking about an opera: *Nixon in China*. The Houston premiere in 1987 was a major media event. Reviews were largely favorable, and the opera has become perhaps the most popular of the past decade, receiving numerous productions and performances and a televised outing on PBS. The recording won a Grammy, and appeared on several "Best of the Decade" lists.

From there, composer John Adams — along with librettist Alice Goodman and director Peter Sellars — went on to an even more incendiary topic for their second collaboration: the murder of Leon Klinghoffer during the hijacking of the cruise ship *Achille Lauro*. *The Death of Klinghoffer* drew even more media scrutiny than *Nixon*, and put Adams firmly on the map as an important and newsworthy composer.

John Adams was born in Massachusetts, into a musically inclined family. He started on clarinet, but showed an early gift for composing. He earned his Masters degree at Harvard, then drove across country to California, interested in the exploratory spirit of the music scene on the West Coast. After a year of unpacking cartons in an Oakland warehouse,

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When I think of avant-garde, I think of thrash music or some whipped-out Japanese transvestite that John Zorn may have dug up. ▲ ▲ ▲ ▲

though, he was about ready to give up. Then a recommendation from fellow Harvard grad David Del Tredici got Adams a job teaching composition and theory at the San Francisco Conservatory of Music. He stayed for ten years, during which time he also directed the Conservatory's New Music Ensemble.

His next break came in 1978 when Edo de Waart, then the conductor of the San Francisco Symphony, hired Adams to be the group's composer-in-residence. He brought contemporary music to a wide audience with his New And Unusual Music series, and he began to receive attention as a composer, thanks to such large-scale orchestral canvases as *Harmonium* (commissioned for the opening of Davies Symphony Hall in San Francisco) and *Harmonielehre*. His striking brand of pulsating, tonal music drew many admirers, and he acquired a reputation as a major minimalist composer — alongside such stalwarts as Steve Reich, Philip Glass, and Terry Riley. Then came *Nixon in China* and *Klinghoffer*.

Adams now makes his living as a composer. He has contracts with Boosey & Hawkes to publish all his scores and with Nonesuch to release recordings of all new compositions. But he refuses to stay pigeonholed. After the second opera, he wrote a searing orchestral piece for the San Francisco Symphony, *El Dorado*, and followed that with a quirky, virtuosic *Chamber Symphony*. What was next? An all-electronic concept album, called *Hoodoo Zephyr*, produced entirely in Adams's home MIDI studio in Berkeley. We met with Adams just as final details of the album — cover photo, liner notes, and release date — were being worked out. We found that the studio has become the center of his compositional activity. He was already busy composing his next piece, juggling schedules for guest conducting stints, and planning upcoming recording sessions.

• • • •

Is your next record after Hoodoo Zephyr *going to have* El Dorado *and the* Chamber Symphony *on it?*

No, actually the *Chamber Symphony* is coming before *El Dorado*. I re-recorded one of my favorite older pieces, *Grand Pianola Music*, in London at the same time that I recorded the *Chamber Symphony*, so that will be the next album. *El Dorado* is going to have to wait for a mate, probably the violin concerto I'm writing now. You know, for me, CDs have been such a mixed blessing, because — while the fidelity is great and the wear and tear you can't beat — the economics are very disturbing. Every manufacturer and supposedly every customer demands a minimum of 60 to 70 minutes of music on a CD. And I think that particularly for a new statement — what I mean by that is like *Sgt. Pepper* or a new symphony or anything that's a completely new idea — the burden of filling 70 minutes of time is really difficult. You and I are the same age. We can remember back to when a piece by Strauss like *Also Sprach Zarathustra* or even a Beethoven symphony was an album, a unit. When it was over, it was like you had been to a movie or read a book: You had a complete experience. Nowadays, an album has to either be ridiculously long, in which case the artist often runs out of gas, or else they have to throw other garbage on it to fill up the space, which takes the impact out of it. If it takes me the better part of a year to write a major piece, I'm looking at two years down the road to get an album out, with *two* major pieces on it. That's just the way the industry is.

Where did you get the title for your new album?

I went to the Valley of the Gods for a vacation — it's between Arches and Canyon Lands in Utah — and saw many hoodoos. A hoodoo is a natural rock formation, a column. They're very spooky-looking things.

You have said that the album was inspired by a late Beatles album in some way.

Yes. I always wanted to do a piece that was studio-produced, and was essentially a song cycle. I think the principle inspiration would be *Abbey Road*.

Side two?

Side two. . . . We're already dating ourselves. As my seven-year-old son says, "Oh, track seven." He knows them by their CD index numbers. But yeah, side two, exactly. I always wanted to do a piece that was essentially studio-created, where I could control every aspect of it. The general theme of the album is landscape — particularly desert landscape, although not all the landscapes are desert. Most of the big pieces have this sense of very gradually evolving musical landscapes. The structure and the form evolve, and they always do it quite gradually. That's obviously an artifact of my minimalist past.

You have talked about the kind of unity and ambience that all the pieces have. Are you talking about the way they deal with time, or about the ambience of the sounds themselves?

Well, it's both. Principally, though, the shared ambience is a sense of spaciousness. I don't think in any of these pieces do you feel closed up in a small space with somebody thwacking away at your head, as you do with a lot of other pieces that are made in studios.

When did you start using the synthesizer as part of your orchestral palette?

There's a very small synthesizer part in *Harmonium*. I used one of the very early Casios. But, actually, one of the very first pieces that I wrote, which turned out to be my Masters Thesis in college, was created with a Buchla synthesizer. I've had a a passion for electronic music that dates back to the late 1960s. I used to listen very closely to all those early Stockhausen pieces, *Hymnen* and *Telemusik* and *Gesang der Jünglinge*, and they had a big influence on me.

Telemusik *has a strong sense of space.*

That's a fabulous piece. And I knew the early Morton Subotnick recordings.

When did you start creating your own electronic studio?

When I was teaching at the San Francisco Conservatory, I became so immersed in the technology that I actually built my own synthesizer. I used to subscribe to a publication called *Electronotes*. It was wonderful, almost an underground alternative publication. It told you how you could send away for oscillators that were probably originally built to guide ICBM missiles. I made a synthesizer using modules from the original E-mu, when it was just Dave Rossum and Scott Wedge. They made these little epoxied modules that just had wire leads coming out. I call that synthesizer my Studebaker, because my parents had a Studebaker that never worked. But I composed a lot of pieces for it, and used it in live electronic performances of pieces by John Cage and Stockhausen and Robert Ashley. Then I bought a Serge, right at the time when digital instruments were finally becoming quite sophisti-

cated. It never became a major part of my life, because shortly thereafter I began buying and using digital keyboard instruments.

The instrument that shows up in Nixon in China *is the Yamaha hybrid organ, the HX-1.*

The Electone? I've still got it. It's just a fantastic instrument. It's a double-manual instrument with both FM and very early AWM samples. I became aware of it when I was composing *Nixon in China*. I got very excited about it, and Yamaha loaned me one. I began writing for it, and I liked it a lot because it was extremely user-friendly — at that time I didn't know a lot about programming algorithms — and I could be very intuitive with it. I used it in *Nixon in China* and in several other pieces of mine. Now, of course, they don't make it anymore, and I'm in this terrible situation of having to revise all those pieces for a more common synthesizer. It's a huge undertaking, because you get really bonded to these particular sounds, and you can spend hours trying to approximate them.

Electronic instruments seem to have an increasingly short half-life. Is upgrading a constant part of your work now?

That's a very good question, because upgrading is a concept that never really existed before in classical music. What's interesting about acoustical instruments is that they reach a state of perfect evolution and then they don't go any further. There doesn't seem to be anywhere further that the grand piano is going to go; it's reached its Platonic ideal. But with synthesizers, I don't think that will ever happen. I think they'll always continue to transform and evolve. So there is this whole new responsibility that composers have, which is to upgrade their technology or their sounds or whatever. I find this an incredible burden, because I already have manuscripts upstairs waiting to be proofread for the publisher; typically, I'm always behind. And then there are people calling from Australia or Poland saying, "We can't find a Roland S-50. They don't have one of those in our country — what are we going to do?"

Is that one of the reasons why doing a set of pieces that exist as a recording is appealing?

It's kind of a lovely idea. But in an era when people are feeling that the orchestral tradition has reached a point of not evolving anymore, there is nothing more thrilling for me than working with electronics in the orchestra. I think the most complex and far-reaching use of it in my work is *The Death of Klinghoffer*. There are four people playing — a little MIDI orchestra right in the pit, surrounded by 60 other musicians. If there is a future for the orchestra, it involves the use of electronic instruments.

But that also sets up a situation where, along with the score, you have to provide some version of the software with the sounds.

Oh, yeah. And of course, my publisher is not equipped, either mentally or technically, to deal with that. There's this poor woman in New York who, up until I went with them, was used to sending out Aaron Copland's *Rodeo* to a pops orchestra; now suddenly she's having to deal with concepts of RAM and ROM and floppy disks. It's a nightmare for them.

A little while ago, you said something about your "minimalist past."

Yeah, when I heard myself say that, I thought that "past" was wrong, because the *Hoodoo Zephyr* album is clearly a real return to minimalist structures for me. I think I started out as probably the most complex and least minimal of the minimal composers, in that my structures and my music have always been more explosive, more dramatic, and less steady-state than Steve [Reich] or Philip [Glass], or even Terry [Riley]. And then I got really removed from it by the time I wrote *Klinghoffer*. But no matter how chromatic the pieces are, they always have a general governing pulse.

There's also something about the way the pieces evolve in time that relates to structural ideas from minimalism.

Exactly. What was exciting about *Hoodoo Zephyr* was that I moved back toward the tonal palette of my earlier minimalist pieces. The pieces are more modal. It's clearly a very consonant piece of work. I also have the American popular music tradition — I mean, there are all sorts of musics that have lodged in my subconscious that I see coming out. Even new age music, which everybody loves to dump on. But, you know, while there may not be a single really truly great new age work, there is undeniably a kind of new age sensibility, and in that there's the possibility of something quite wonderful, something very dreamy and distant and poignant. And then there's barrelhouse, ragtime, some film music; lots of influences. But the minimalist thing, the way in which an idea grows very gradually over time, is something that's been uniquely of interest to me.

In the last piece, "Hoodoo Zephyr," there are a lot of different repetitive patterns, but they all have different phases. There's a very striking moment about two-thirds of the way through, where all of the patterns converge and there is just one pattern; it repeats for a while, and then the texture spreads back out.

Well, you know, a really sophisticated software program like [MOTU] Performer has within it the possibility of extraordinary structural innovation. But most people who use these programs just don't have enough chops musically. They haven't spent enough time in the boiler room paying their dues, learning how to handle large structures, which is why I really encourage young student composers to learn to deal with old-fashioned means of struggling with an idea and writing it out. It's too easy to work with a software program. It's too easy to take a chunk and move it over here and recycle it or invert it or augment it. You need to sweat it out on the mental level first before you can have the luxury of working with that software.

A couple of pieces on the album have textures and sounds that would suggest to some people new age music or even Tangerine Dream and other European electronic groups. Have all of these things influenced each other?

Oh yeah. You know, I go to Europe a lot, and as soon as I get over there, I so much appreciate being an American. In Europe the new music scene is extremely precise about what is highbrow and what is lowbrow. There's no middle-brow. There is the acknowledged, bonafide avant-garde, which is becoming more and more established as time goes by, and then there's pop music. And most of the pop music comes from America anyway.

What is the bonafide avant-garde over there?

Oh, you know, it's whatever Boulez says it is that week. And it isn't *real* avant-garde. When I think of avant-garde now, I think of thrash music or some whipped-out Japanese transvestite that John Zorn may have dug up. Avant-garde in Europe now is mostly older men whose careers have been almost entirely supported by government funding. So I'm very happy to be an American. People in my generation and younger have grown up with recordings, and because we place less prestige on the printed score, what really counts to us is how something *sounds*. There's a great deal of bleed-through between "classical" music and "popular" music. This album for me is a reaffirmation of that, because I'm basically

JOHN ADAMS: A SELECTED DISCOGRAPHY

The Chairman Dances (also includes *Christian Zeal and Activity*, *Two Fanfares for Orchestra*, and *Common Tones in Simple Time*), Nonesuch.

The Death of Klinghoffer, Nonesuch.

Eros Piano (on *American Elegies*, which also includes works by Ives, Marshall, Feldman, and Diamond, conducted by Adams), Nonesuch.

Fearful Symmetries and *The Wound-Dresser*, Nonesuch.

Grand Pianola Music (also includes *Eight Lines* by Steve Reich), Angel.

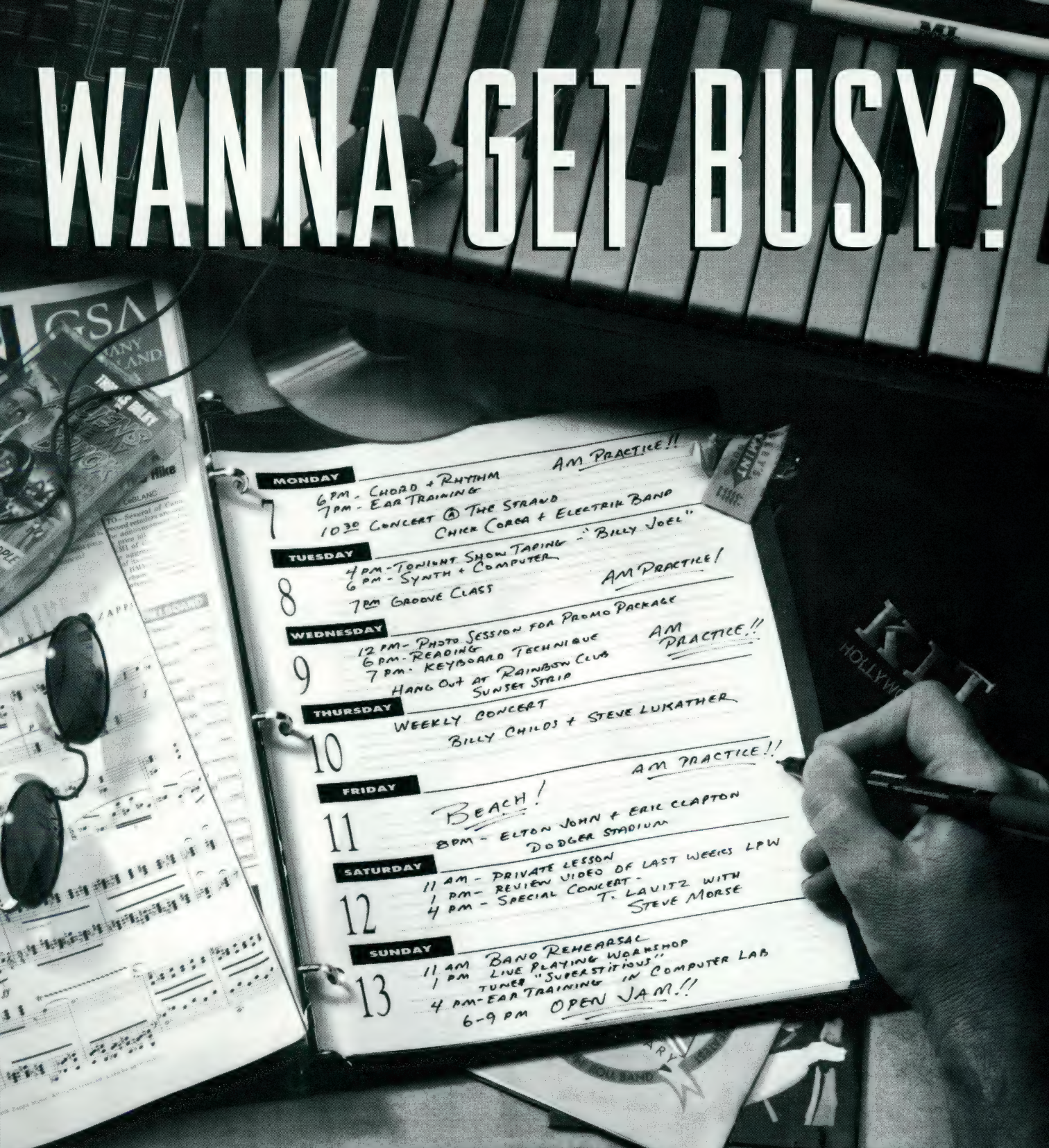
Harmonielehre, Nonesuch.

Harmonium, ECM.

Hoodoo Zephyr, Nonesuch.

Nixon in China, Nonesuch.

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thought of as a classical composer — I write orchestral music and operas. But even in those pieces, in a piece like *Nixon in China*, you can hear Glenn Miller and rock and roll and jazz. And I think that's the essence of all great American music, whether it's Charles Ives, or Aaron Copland, or whomever.

It's the blend.

Yeah.

Ten years ago, you described yourself as "a minimalist composer who is bored with minimalism," and . . .

I never did!

You never did?

You know, Milton Babbitt once wrote this article for *Stereo Review*, and an editor at *Stereo Review* put the title on it: "Who Cares If You Listen?" Babbitt never said that, and he spent the rest of his life denying that. I will probably spend the rest of my life denying the phrase you quoted. It's one of those phrases that people love to repeat.

Well, we can set the record straight here.

I think that it was applied to me by Michael Steinberg. He's a great writer; he's written notes for both of my operas. I think he meant it as a compliment, but it stuck to me.

Okay, if you had to have something stuck to you, what would you rather have it be?

I don't know. If somebody had to say something short and quaint and painfully vague, I would just prefer to be thought of as a quintessential American composer, because I think not only is my outlook very American, but my sources are very American. As far as minimalism goes, I've often said that in art music or serious music, minimalism is the single most important stylistic development since serialism. And that gets a lot of people hot under the collar, but I really do think that of the discovery of minimalism and all that it meant: It meant the stripping away of all this complexity and a rediscovering of tonality, a rediscovering of pulse, and it brought about an enormous sea change in musical thinking about 20 years ago.

There's a fair amount of tonal music being written today that doesn't have a direct connection to minimalism. Do you see those as being other currents that are going somewhere, or are they just fiddling around in the 19th century's backyard?

Like David Del Tredici? I think Del Tredici's music is the music of nostalgia. And nostalgia has its uses; it exists in some of my pieces too. But what you really want in a piece of music is something that's totally fresh, something that just knocks you out. So nostalgia doesn't interest me a great deal. There are also a lot of composers who are experimenting with different kinds of found objects — William Bolcom, for example, who likes to use a lot of found objects from ragtime or popular music. For me, what is really meaningful is the structure — the way in which the music is put together — and whether it makes a powerful unified experience.

Let's talk about opera a little bit. My understanding is that Klinghoffer *was commissioned by five groups, and now some of them have backed off from producing it?*

Yeah. Los Angeles did, for one, and there's really no excuse. They're claiming that they can't afford to do it, but when it was done here in San Francisco, it was the second best-selling opera of the season. My operas sell very well when they are performed, but opera companies are still nervous about mounting them.

Do you have any clue why?

Well, I have no clue about *Nixon*, because *Nixon* is an opera that offends no one, except maybe some liberals who wish that I'd been nastier to Nixon. But *Nixon* always does well and always garners a lot of interest. There's no reason why other American opera companies shouldn't be doing it now. I think that there is a general feeling — with both opera and orchestra administrators in this country — that unless there's a special event connected with a performance of an American work, *i.e.*, that it's a world premiere or that it's being recorded or that a video is being made, that it's not enough of an event to justify its being produced. This gets into what we call the "second per-

Continued on page 115

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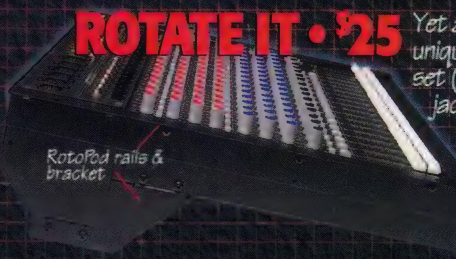


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The ADAT Format – made for multitrack

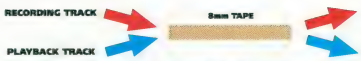
ADAT records eight tracks of 16-bit linear, 48 kHz sample rate audio, with no data compression "tricks" or channel sharing. We chose Super VHS® (S-VHS®) tape as a foundation, then designed ADAT's data structure and heads specifically for the rough-and-tumble, back-and-forth, punch-in-and-out environment of multitrack recording. To make sure that recording one track wouldn't disturb any other track, we divided each helical scan into eight separate data blocks. Some digital recorders combine data from two different channels into the same data block on tape, which means that each time you record a track, another track must be read into a buffer and actually re-recorded even though it is in "safe" mode.



An 8 track, 8mm recorder's helical scan: there are only four audio data blocks, forcing each track to share a block with another.



An ADAT's helical scan: ADAT tracks are safely separated into 8 discrete data blocks. (Both vertical dimensions enlarged for clarity)



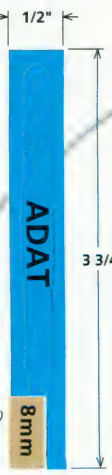
The 8 track, 8mm helical scan format risks introducing errors into "safe" tracks each and every time you press record.



The ADAT format records each track discretely, as all professional multitrack recorders should.

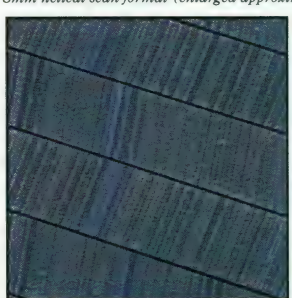
Bigger is Safer

Microscopic contaminants in the studio aren't just probable, they're statistically inevitable. If the format can't overcome them, they'll cause mistracking, noise, distortion, even total muting of the audio. Formats smaller than S-VHS are more vulnerable to contaminants, dropout, and misalignment, especially when exchanging tapes between machines. One 8mm digital format attempts to squeeze the same amount of sound into one-tenth the tape area that ADAT does. ADAT's S-VHS tape offers more total surface area to meet the demands of digital recording, and its wider 100 micron tracks are five times less vulnerable to being derailed by dust. Because even though technology makes it possible to make formats smaller and smaller, dust stays the same size.



Comparison of tape areas for 1 second of audio: ADAT (1,211 mm²) and the 8 track, 8mm helical scan format (133 mm²).

Actual microscopic comparison of the ADAT tape format and the 8 track, 8mm helical scan format (enlarged approximately 100 times).



ADAT's wide 100-micron tracks offer an extra margin of safety for digital audio.

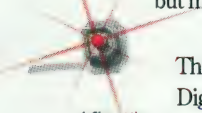


The 8mm's 20-micron tracks squeeze more data into the same area, with little room for error.

than any other company. More than Sony. More than Mitsubishi. More than Yamaha, Akai, and Tascam combined.

More than just a tape recorder– The ADAT System

ADAT, when combined with the BRC™ Master Remote Control, is a complete digital recording and digital editing system with features that no other recorder, analog or digital, can match. The BRC is a full-function autolocator and MIDI/SMPTE time code chase-lock synchronizer. Plus, it controls digital copying between ADATs, like a disk-based recorder, but much simpler to use.



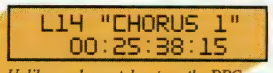
A fiber optic cable for digital connection is included with every ADAT.

The ADAT MultiChannel Optical Digital Interface digitally transmits up to eight ADAT channels at once over a single fiber optic cable to any track on any ADAT in the system without repatching, all in the digital domain. Now you can "fly in" that perfect vocal part to multiple locations in seconds, with absolutely no generation loss. And our new QuadraSynth™ keyboard has an ADAT digital interface so you can record it without ever leaving the digital domain.



The BRC Master Remote Control, shown with optional RMB™ Remote Meter Bridge, supercharges your ADAT System by adding SMPTE and MIDI synchronization, storable autolocation points, copy and paste digital editing and more.

ADAT/BRC digitally stores important session notes



Unlike analog autolocators, the BRC can recall 460 points, storable on each ADAT tape for later recall, so you can keep your mind on the project instead of having to remember minutes, seconds and frames.

Instead of scribbling notes on cumbersome studio track sheets, the BRC lets you store 400 autolocation points, 20 Song start points, punch in and out points, MIDI tempo maps, SMPTE offsets, and more in the two-minute data header of the ADAT tape. The BRC's alphanumeric display lets you name each cue point and song. It even has a handy built-in list of 16 standard cue point names you can edit.

The ADAT Worldwide Network

Thousands of ADAT Worldwide Network™ multitrack recording group members are reaping the benefits of choosing The ADAT System. As WWN members, they are able to collaborate and exchange ADAT tapes with other talented musicians, producers, composers and engineers throughout the world. Alesis is proud that so many creative people worldwide are using this American-made product, making ADAT the most popular digital multitrack tape recorder in history. The recording professionals below don't endorse ADAT, they *use* it every day. Their credentials speak for themselves. Visit your Authorized ADAT dealer and see what the new standard in digital multitrack recording can do for you.



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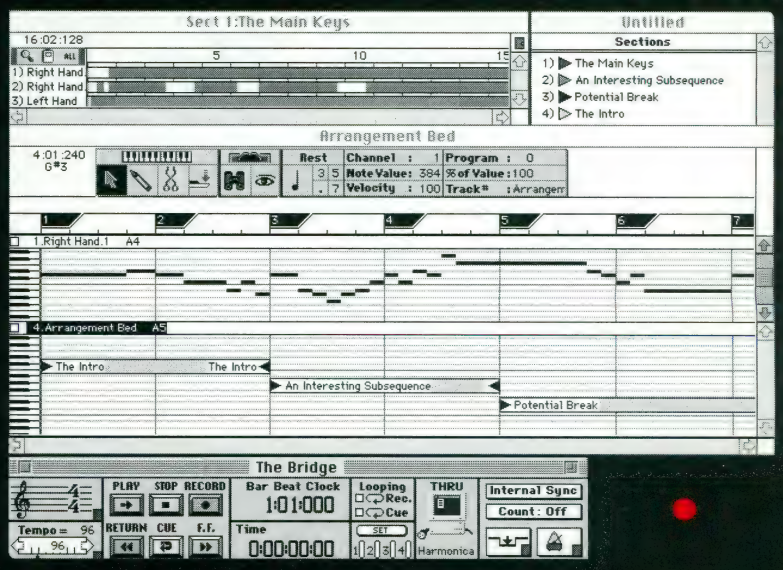


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Continued from page 110

formance" syndrome. Most pieces of new music get a world premiere, and that's it. Then, 20 years later, somebody says, "Hey this is a good piece; let's revive it." It's one of the really unpleasant realities of life as a composer.

In an earlier interview, you said that one of the reasons you wanted to do an electronic album was that you thought there were too many orchestral pieces out there littering the landscape.

Not a very generous comment, was it?

Well, if someone commissions you to write a piece, it's hard for most people to turn it down.

The thing about commissioning is that it's this sort of knee-jerk action for orchestras. They feel it's part of their *noblesse oblige*: In addition to offering the Tchaikovsky *Violin Concerto* 20 times every season and regurgitating Beethoven's *Fifth*, they ought to commission a new piece every once in a while. It's just a really stupid and stubborn attitude. What they really should be doing is, yes, occasionally commissioning and premiering a new piece, but more than that they should be saying, "What is American culture? What do our composers really have to say? Let's get that music out and play it." Because if people hear and get to know a piece, they're going to want to hear it over and over again. Of course, composers have also contributed to this situation over the years by writing increasingly obtuse, inaccessible, and largely ugly music, which has frightened off audiences and made conductors and marketing people shy. Some time after World War II, the model for the serious composer became the scientist, and you had a lot of composers who were acting and behaving consciously like scientists — people like Xenakis and Babbitt. You know, music can be treated as a science. After all, music fundamentally is nothing more than numbers; it's molecules banging around in space. You can treat it as a science, or you can treat it as a great communicative expressive art. It can be anything to anyone. That's the wonderful thing about it.

How did you start collecting the instruments that are in your studio?

I started with the Yamaha HX-1. And then I went MIDI some time in 1990. My first sampler was a Roland S-50, which I used live in *Fearful Symmetries* to do the percussion. Now I have the E-mu Emax. Then gradually I added other instruments. I bought a Yamaha SY77, which I've since upgraded to an SY99. And then an E-mu Proteus/1 and a Korg Wavestation. My most recent addition is the Kurzweil K2000. I work on a Mac IIcx, running Performer. And I use [Opcode] Galaxy. Everything is connected with the [MOTU] MIDI Time Piece. And I use a Lexicon LXP-15 — I'm going to get another one, because I really like it. The SY99 is my master keyboard. I really like the instrument — I'm so used to it now.

Do you create your own samples?

No, and I never have. I use factory samples, but then I really go in and hone them dramatically. I have two fundamental uses of my studio. One is to do creative work, like *Hoodoo Zephyr*. The other use is as a scratchpad — an extremely thorough and sophisticated scratchpad — for my orchestral work. I actually entered all two hours and 20 minutes of *The Death of Klinghoffer* into MIDI, if you can believe it.

I love your phrase about that process from an L.A. Times *article: "stupefyingly laborious."* [Laughter all around.] *Did you do that so that the singers would have something to work with?*

Partly, but now I do everything that way: My first musical spouts are in the MIDI realm now. It used to be that I'd sit at the piano with a tape recorder or a sketchpad, and now I do everything directly into MIDI. It's only later down the line that I deal with the notational aspects of it.

Did you do El Dorado *that way?*

Yes. It's a huge change.

So, starting with El Dorado, *you got rid of the first two stages you have talked about with* Klinghoffer *— writing sketches, writing a piano score, then entering it all into MIDI. Now you're just working directly with your MIDI rig, and you go from that to notation. Are you looking into trying to coordinate a notation program so that you don't have to copy out*



the score by hand?

Well, it's funny you ask that, because the new version of Performer has an exceedingly crude print function, but it's really dumb: It can't even recognize a triplet. You should have heard the shriek when I discovered that. This thing came in the mail and I was so excited, and I went upstairs . . . and about 20 minutes later, my despondency could be heard all over the neighborhood. The problem with notation, I fear, is that it will be one other level of labor and time-consumption that is just going to break my back. I have somebody who works hand in hand with me on the final notation. I send it down to him in pencil manuscript, and he enters it into [Passport] Score. The question is, would it be faster to do stuff with notation software, rather than doing it by pencil? That's a learning curve I have yet to tackle.

It seems as if what you'd have to do is find something that takes the files from Performer and translates them into notation, and then you'll have to go in and fix it all. It's like these character-recognition software programs that supposedly save retyping, and they're 93% accurate, but you'd fire a typist who was only that accurate.

Exactly. If you write fundamentally tonal music like I do, and you have 7% error rate in wrong notes, forget it. You have to have 99.9%. And notated music is so sophisticated, and what comes out of a sequencer program . . . well, you know what it looks like.

You mentioned earlier that there are a number of processes that can be used in subtle ways within Performer for composing. What came first, the chicken or the egg?

Well, I think sometimes it's the chicken, sometimes the egg. For example, last January I was asked to conduct in Europe these pieces by Conlon Nancarrow, some of the *Studies* for player piano, which had been arranged for chamber orchestra. I looked at this score and said, "How can anybody possibly play this?" Well, in fact, the musicians could play it. They just really worked their butts off learning to play seven against twelve against five. And I was incredibly inspired by that, because once you've heard it, you know it can be done. That was something I had never attempted in my own music, and I discovered that it was shockingly easy to do that with Performer. There is a scale time function, so you can take a musical idea that recycles every eight bars and say, "let's have it recycle every seven bars instead."

Each note just gets shorter.

And at the command of a keystroke, it's done. Whereas poor Conlon Nancarrow would spend a month figuring this out with a metric scale on a piano roll and punching these durations in. It's easy as pie to do it with a computer. That's a case in which the egg came first. An opposite situation developed out of my just freely playing around with Performer. One of my biggest discoveries has been the custom scale function in the transpose window. I have entered a bunch of unusual scales into the custom scale window — they're just there, like an arsenal. I discovered that I could have a whole section of music, an eight-part counterpoint, something incredibly complex, and subject the entire passage to a scale transposition. And this incredible change of color and emotion and timbre results. It's like an algebraic equation. There are all these scales I've entered. I've taken some of them from Slonimsky's *Thesaurus*. One of my favorite scales is called "Prometheus" — it's based on Scriabin's "Prometheus chord." I start with a regular 12-note scale, and each scale note corresponds to a pitch in the Prometheus scale; but the Prometheus scale is only a six-tone scale. I've had to assign 12 notes to six, so a scale transposition is going to be very weird. That's a case in which technology precedes art. I'm a great believer in that. I have always felt that it's technology that makes the advance, and then the artists come and use it. I don't think it's the other way around, that artists think of some brilliant thing and then technicians come around and try to create the thing to fulfill the artist's image. There's an almost inexorable natural force about technological evolution; it will happen whether

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we want it to or not.

In these pieces, when you're talking about your sketchpad, obviously you're trying to get very close to orchestral timbres.

I am. I used to spend an enormous amount of time doing that. In fact, the MIDI tape of *El Dorado* is very, very close. Nowadays, I realize that it's not worth the time to carefully hone something if I'm just using it as a scratchpad. For example, I'm writing a violin concerto now, and I *hate* sampled violin. It's just disgusting. So I just don't even bother with that: The whole violin part is on sampled piano. But I have other instruments that are really really good approximations of orchestral sounds, so I use them.

On the album, there are many transformations, such as turning bass clarinets into percussion instruments: A lot of your background with pure electronic music shows up.

There is one thing that I do regret: the simple fact that all digital synthesizers and samplers are fundamentally keyboard, tempered instruments. There's a kind of a prejudice in the scenario toward a kind of sound, toward a kind of music, because of the way the instruments are designed. I often have these waves of desire and nostalgia for an instrument that doesn't have a keyboard, that's just a bunch of knobs and wires.

Aren't there a number of untempered pitches on Hoodoo Zephyr*?*

Yeah, that was a big thing, especially in the piece "Disappointment Lake." They come from one of my favorite instruments, the Wavestation. I use it a lot in alternate tunings, and then I mix those with the tempered tuning. It creates an incredible texture. That is something I want to do a lot more with.

Since pulse is very important to you, one would imagine that you would use quantization a lot. But there are some places where you obviously did not.

I sometimes use quantizing, but basically if you use a sequencer and you have a click track, that's kind of a large-scale form of quantization anyway. I sometimes use it if I've done a track and I really like what I've done, but it's a mess. I'm not a very good keyboard player, so sometimes I have to go back and fix it, if quantizing works and still sounds natural. But I don't use the function very often. I like to stay with the natural feeling, and then go back and pick up the dead bodies.

As you worked on these pieces, did you start with entire conceptions of pieces? Did you work your way into a piece?

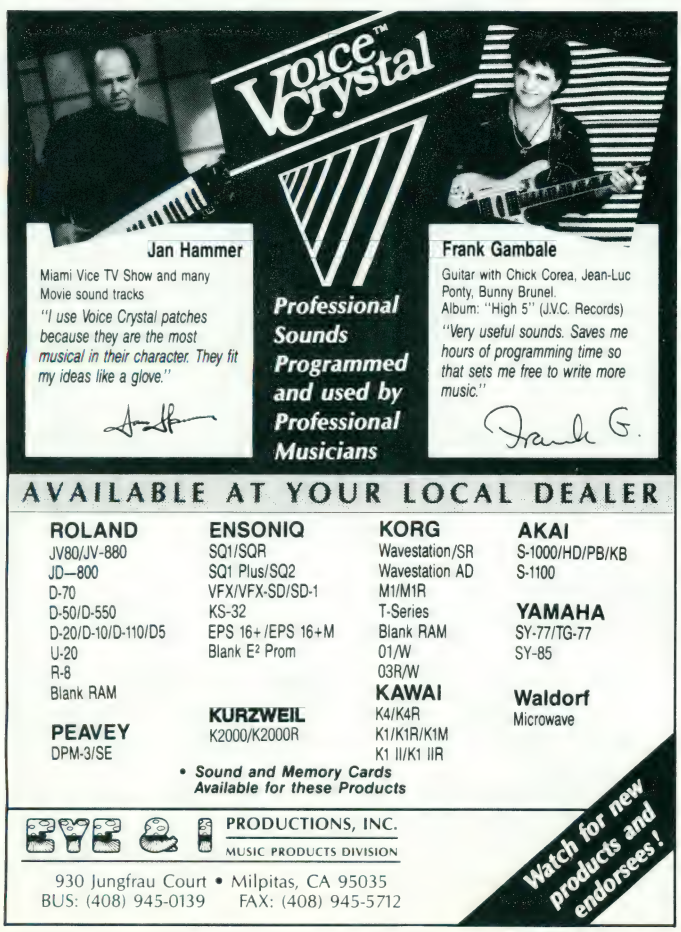
No. A piece for me . . . and this goes for every piece that I've ever written, except possibly the operas where I had a story I had to follow . . . every piece begins with a simple motive, an idea that generates something. People often think that a composer has this vision of a total piece that comes to him in a flash, like a bolt from heaven. That's possible, but usually what happens is that you get an idea, and it may be nothing but just a little pattern or a little texture or something, and then you just follow it. A good composer just has this ability to be patient, to follow an idea and to let it grow, and just water it and weed it and let it develop. I try not to be too willful about it. I try not to say, "No, damn it all, this should do this and that should do that," because then it's like a parent who is too strict with their kids: The piece turns around and does something unpleasant [*laughs*].

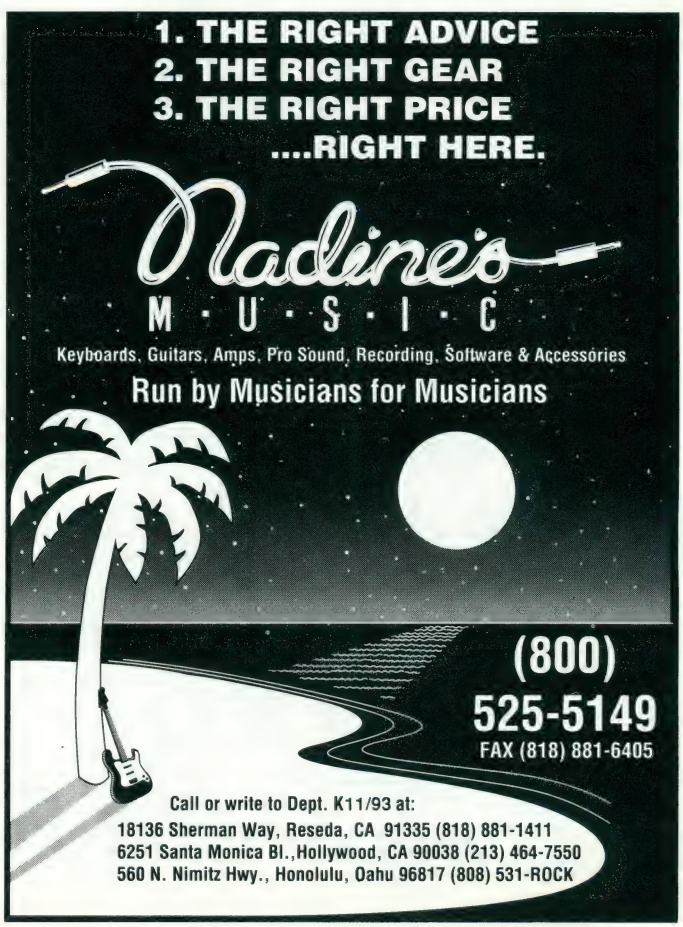
So what was the first idea in "Bump" — the overall thickness?

No, the first idea was what I call the "mega ukulele," which was a sound I got on the Electone. I just got this crazy image of some old geezer like Gabby Hayes strumming on this ukulele that was 70 feet high. That led to a sort of honky-tonk, whipped-out, fast rag type of piece; and then the saxes join in.

There's a real sense of three-dimensional space on the album. Sometimes there's lots of background activity — "Cerulean" in particular, where there are three or four independent things going on in the background.

Anyone who examines the sequences is always amazed at how complex they are: There are usually four and sometimes as many as eight separate voices going. And I don't mean channels, I mean musical voices, like





an eight-part fugue. But you don't always notice that when you're listening to it, because they're so much in the background: It doesn't feel busy.

No; it's not swarming over you.

That makes the listening experience interesting, because the third and fourth time around hearing a piece, your ear wants to go somewhere else. That is what's wonderful about those late Beatles albums, for example: There are so many levels to go into. And also, you know, my personal background as a conductor and a composer comes into play. I spent a lot of time with Ravel and Stravinsky. These guys really knew what they were doing in terms of timbre and orchestration. You look at a Ravel score or a piece like *Petrouchka* — pieces I've conducted, so I've been there in the midst of an orchestra and known how complex the activity is — when you're out in the audience, what you get is a sort of gorgeous warm bath of sound. You're not quite aware in a piece like *Daphnis and Chloé* just how much detail there is.

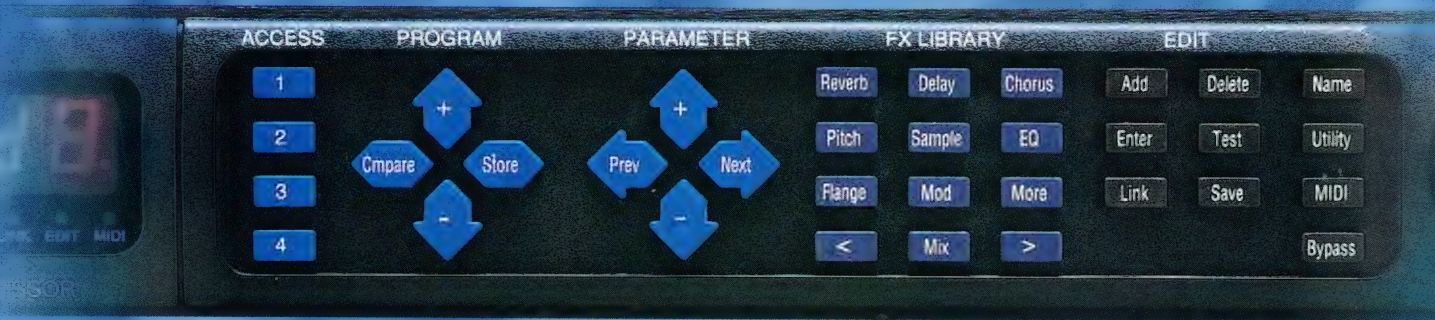
Is there anything you want to talk about that we haven't covered?

It's disturbing to see how really poor the musical education is these days. There are people who have a lot of creativity, and they may be very smart technically with these instruments and with computers, but if they don't have the fundamental musical education — a theoretical command of music, harmony, and I think you also need to have a sophisticated knowledge of the history of music — then it becomes very hard to create really meaningful music. I worked with Keith Jarrett; we did the Stravinsky *Piano Concerto* together. This guy has an immense musical training, and there is no way of getting around that. And look at other people who are very hip, like the Kronos Quartet: They have this incredible musical training. You can't get that by buying a new piece of equipment. It sounds like I'm giving a lecture, but it's very disturbing. There's very little musical education offered in the schools. That's the sad thing: People sometimes have an enormous gift, and they might get away with doing something once or twice; but you can't make a career of it if you don't have technique to fall back on. Those are the hard rules of the game.



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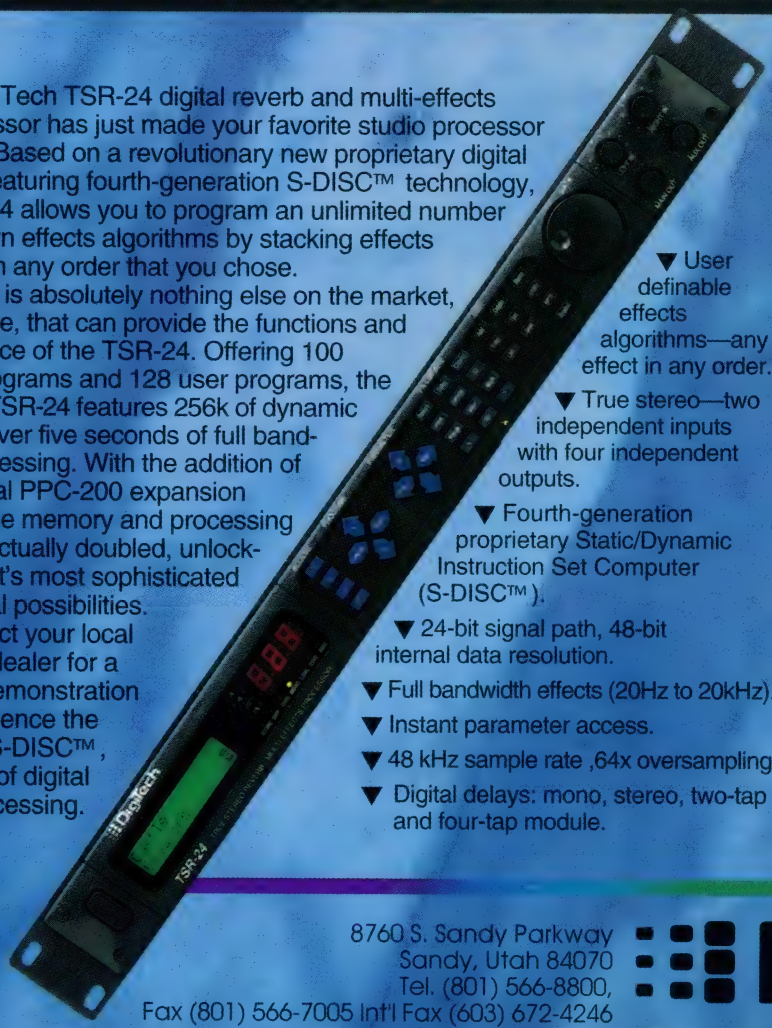




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KORG 01/WFD: SUBLIMINAL SOUNDS, VOL. 1-5

SOUND QUALITY: ● ● ● ● ●

SELECTION: ● ● ● ● ●

BANG 4 THE $: ● ● ● ● ●

Overview: A wide variety of useful and consistent 01/W patches from a new sound company. Each volume provides synth pads, acoustic and orchestral instruments, lead sounds, vintage keyboards, sound effects, and soundtrack patches.
Contents: 100 patches, 100 combis per 3.5" floppy.
Retail Price: $29.95 per volume (shipping not included). Banks copied to your RAM card, $29.95 per bank. Multi-volume discounts available.

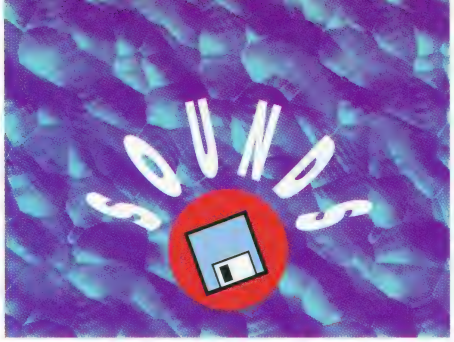
Subliminal sounds? Hardly. Most of the patches that appeal to us will get people's attention right away. Like "Subliminal" in Vol. 1, which evokes Wendy Carlos's opening music to *The Shining*, with some eerie wind chimes thrown in to chill the blood. Each note you play with "Floatn Spc" (Vol. 1) fades in on the tonic, followed by a note up a perfect third. Push the keyboard and the note begins to pulsate. As soon as you release the note, its pitch falls an octave before fading out.

More controller imagination went into creating Vol. 3's "Galaga," in which velocity controls the rate of a descending pitch envelope and aftertouch brings in a brisk trill. Play "Mechanoid" (Vol. 3) lightly and you only get choir; more velocity adds a mysterious electronic cricket-like sound whose pitch is modulated with a reverse sawtooth wave.

Organ patches are abundant on each of the Subliminal 01/W disks. The one that far outshines the rest is "OrganDonor" on Vol. 1. This rendition of a Hammond organ makes use of the 01/W's Leslie simulator. Aftertouch controls the rotating speaker speed, which varies in a way consistent with how Leslies really work. When you push down hard on the keyboard, the rotor doesn't immediately speed up; there's a delay before the rotor kicks in and speeds up. It also takes a second to slow down when you let up.

Subliminal programmer Eric Cogliandro collects vintage synths and drum machines, so representations of old gear pop up frequently in his 01/W library, often with obvious names like "Prophet 5," "FM Organ," "Fairlight," or "ARP 2600." Our fave on Vol. 4 is "NamShow 81," a synth pad that could be emulating a Crumar GDS, Yamaha GS-1, PPG Wave 2, Sequential Prophet-10, or Oberheim OB-Xa, all of which were introduced in Chicago at Summer NAMM 1981.

The fifth Subliminal Sounds volume, Natural Sounds & Textures, focuses on pianos, organs, orchestral instruments, and old synths. Pads are everywhere. Our favorite on the disk was "Hueyharp," in reference to the harmonica-playing Huey Lewis. Pressure bends the pitch downward until the note starts fluttering.



Two complaints: First, documentation is limited to a list of patch and combi names. That may be ecologically sound, but descriptions of the sounds and performance tips are sorely needed. Second, occasional patches are considerably louder than their neighbors — to the point of frying your tweeters.

Congrats to Eric for a job well done. His patches would be a welcome addition to any well-stocked 01/W library. *—Mark Vail*

ROLAND JV-80: ROLAND RICH SOUND COLLECTION 2 & CONTEMPORARY COMPOSER

SOUND QUALITY: ● ● ● ● ●

SELECTION: ● ● ● ● ●

BANG 4 THE $: ● ● ● ● ●

Overview: Extends the sonic palette of the JV-80 while leaning more toward useful sounds than imaginative creations.
Contents: 64 patches, 16 multis per card.
Retail Price: $84.95 each (ROM card).

Roland's Contemporary Composer card (PN-JV80-05) is one of the few manufacturer ROM cards we've seen that sports an actual byline. These sounds were programmed by Andrew Schlesinger, a boundlessly creative fellow who seems to have been reined in by Roland's desire for basic meat-and-potatoes patches. Don't get us wrong — the sounds are well programmed, and they're big and beefy. But the lineup runs almost entirely to clavs, brass, sawtooth synth, generic organs, techno basses, warm pads, ethnic bells, and such. "BeezleBreath," on the other hand, is the closest thing we've ever heard to a demon chuckling. You don't suppose there's some kind of ironic comment here, do you?

The Rich Sound Collection 2 (PN-JV80-04) is heavy on the analog synth leads (most of which have rhythmic delay built into them). A few synth basses too — but practically everything else on the card is tailored toward new age rather than rock. Lots of chiffy and chimey pads to choose from. We liked the understated warmth of "Ana Celesta" and the hollow breathy swirl in "Gaia Gear," but once the warm plucked attack of "Odyssey" has faded away, the wind chime undertone sustains obnoxiously, sounding more like a herd of woodpeckers or a pocket watch gone mad. *—Jim Aikin*

YAMAHA RY30: YAMAHA RHYTHM PROGRAMMER ARTIST SERIES (DAVE WECKL)

SELECTION: ● ● ● ● ●

WAVEFORMS: ● ● ● ● ●

PATTERNS: ● ● ● ● ●

BANG 4 THE $: ● ● ● ● ●

Overview: Drum samples and grooves from jazz/fusion superstar Dave Weckl. The sounds are great, but the RY30's low clock resolution can't handle Weckl's lightning chops.
Contents: 18 waveforms, 32 voice patches, 33 patterns, two songs.
Retail Price: $99.00 (ROM card).

It's great when a drum machine is built to accept new waveforms. Such is the case with Yamaha's RY30. In the Artist Series, which features the sounds and grooves of some of their top drum endorsees, the company is making good on their promise to build a library of wave-

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MIDI Mark, Box 217, Whittier, CA 90608. (310) 699-0095. Fax (310) 699-0864.

Polestar, dist. by East-West Soundwarehouse, 1631 Woods Dr., Los Angeles, CA 90069. (800) 833-8339, (213) 848-8436. Fax (213) 848-3034.

Roland, 7200 Dominion Circle, Los Angeles, CA 90040. (213) 685-5141. Fax (213) 722-0911.

Subliminal Sounds, P. O. Box 18068, San Jose, CA 95118.

Yamaha, 6600 Orangethorpe Ave., Buena Park, CA 90620. (714) 522-9011. Fax (714) 522-9832.

forms and rhythm patterns.

The 18 samples offered on the Dave Weckl card (RSC3071) are excellent. There's one bass drum, four snares, seven hi-hats, four toms, and two cowbells. The toms are punchy and resonant, and having two hits each (hard and soft) from two snare drums makes programming parts with nuance much more practical. The same goes for the hi-hats: All seven samples came from the same cymbals. If anything, we were a bit disappointed that there weren't more waveforms, but that's all Yamaha could stuff onto the card.

The patterns programmed by Weckl are a mixed bag. Most of the grooves are exceedingly useful. But when he starts to get busy, the RY30's ultra-coarse clock resolution (a measly 24 ppq) turns his brilliant style into a quantized mess. Too bad you can't buy these grooves as high-res MIDI files. Overall, it's a decent package, but a hundred bucks is a little steep for just 18 waveforms. *—Greg Rule*

SAMPLING CD: POLESTAR XL1

SOUND QUALITY: ● ● ○ ○ ○

SELECTION: ● ● ● ● ●

BANG 4 THE $: ● ● ● ● ●

Number of Sounds: Over 2,500 samples.
Overview: Loops, loops, loops. . . . Also individual drum hits and effects.
Retail Price: $129.00 for set of two CDs.

If you liked Polestar's X-Static Goldmine, you're gonna really dig this. Loops, vocal licks, bass samples, pops, hiss, all the fixin's for that raw, underground sound. It was sheer pleasure digging through this melee of grooves. The discs are laid out toolbox-style: Each section starts with a demo followed by a collection of loops, then the individual drum sounds and other effects (vocals and synth timbres). Each toolbox is indexed, and BPM figures are given. The loops are just over one measure each, giving enough spare data for smooth crossfades.

Styles range from rap and hip-hop to house and acid. Real standouts: "All Night Rave" features a solid four-on-the-floor kick and a phased, syncopated snare groove, and "Funky Raregrooves" kicks with some seriously f-u-n-k-y drum loops. We couldn't get enough of this one.

Each CD contains seven "DAT B-UP" tracks of CD-ROM data, which can be transferred directly to an Akai S1000/S1100/S3000 sampler equipped with a digital interface. These kits and loops from various tracks on the discs will be named and laid out on the keyboard, ready to go! For the rest of us, a test tone is slated at the end of each disc, which helps set the optimum volume for trouble-free sampling.

—Steve Santana

ENSONIQ EPS-16 PLUS: MIDI MARK DISK LIBRARY

SOUND QUALITY: ● ● ● ○ ○

SELECTION: ● ● ● ○ ○

BANG 4 THE $: ● ● ● ● ●

Overview: Analog synth and percussion samples, suitable for techno.
Contents: Moog, ARP Axxe, Roland SH-101, and Kawai K3 sample disks, plus drums and drum loops disks.
Retail Price: $7.00 per disk, $38.00 for the six-disk set. (Prices include postage and handling.)

Peripheral sounds — special effects, hip bits of sweetening — are the primary focus of MIDI Mark's vintage analog collection. Depending on your gig, any one of these disks could come in handy when you need just the right zap, buzz, or thunk. A few strong analog basses, too, but for meat-and-potatoes pad textures and lead patches, look elsewhere.

Techno types will probably get the most mileage out of MIDI Mark's set of nine Kawai K3M sounds; the "Techmonoglid" patch, a dramatic monophonic gliss, is especially effective. But you'll have to tolerate excessive hiss on some sounds, as well as some extremely annoying loops. On Fat Bass, for example, the loop accelerates in the upper register into a shrill sputter. (On the other hand, if that's the effect you want on high lead lines, look no further.)

Though the SH-101 collection has a bit more variety, it also has some hiss problems, as on the otherwise pleasantly ethereal "Six String Lyr" patch. There's a dramatic split point, too, at the *E* below Middle *C* on "SH Pno." The bright buzz in the lower range vanishes, leaving a disquieting octave doubling on the right half of the keyboard. Hiss was also present on some of the sounds in MIDI Mark's demo disk, especially on the "310 699 0095" organ. (That's the company's phone number, not the drawbar registration.) Incidentally, it's not a demo disk in the sense that it's a collection of stuff from elsewhere in their library; it's just one of the disks. On the same disk, you'll find a drum loop, a one-finger minor chord suitable for techno cuts, a resonant bass, sawtooth fifths, and analog choir.

For creaky old analog space effects, the Moog/Realistic collection can't be beat. Sampled from an ancient synth designed by Moog Music for Radio Shack, it offers eight buzzy, filter-swept, yowping sci-fi noises, evoking images of Flash Gordon ray-gun zaps and cyborg insects. If your tastes are more rave than prog, you might turn to the T-1/T-3 Mega Drums disk, which has 29 useful techno/house sounds arranged in a single kit. Except for the clicky kick drum, they're sampled with a short gated reverb, so they may be better suited for fills than bedrock rhythm sequences. Backwards versions of the same sounds are hidden under a Patch Select button for some heavy gated action.

Our copy of the sixth disk, which features ARP Axxe patches, was defective, so we couldn't review it. Overall, the MIDI Mark collection isn't terribly inspiring. But there are at least one or two useful sounds on each disk, and at $7 per, the price may be right. *—Robert L. Doerschuk*

CASIO FZ-1: KID NEPRO PRODUCTIONS DISK #104, WARM ANALOG SOUNDS

SOUND QUALITY: ● ● ● ○ ○

SELECTION: ● ● ○ ○ ○

BANG 4 THE $: ● ● ● ○ ○

Overview: A decent collection of fat analog patches, useful as pads, basses, or effects.
Contents: Eight banks, 35 voices.
Retail price: $10.00, 3.5" floppy disk.

This disk manages to squeeze out a respectable amount of quality sound from a sampler that is not exactly on the cutting edge. The synth brass-oriented "Lush 1" is warm enough to work as a pad, yet its cutting upper end makes it ideal for soloing. While the upper end of "Short LL#2" resembles a dinky FM-type clavichord, the lower registers overflow with attitude — perfect to drive a techno-flavored tune. The broad filter sweep of "LL#1/LL#2XFD" could add just the right twist to your mix.

Unfortunately, the disk suffers from some glaring programming deficiencies. For starters, the names of the banks are too similar. "Was that bank called 'Short LL#2' or 'Short LL#2A'? Or was it 'New Lush#1' or 'New Lush*'?" Also, the samples are looped rather poorly; we were hard-pressed to find a sample without an obvious loop point. We would have liked to see more banks configured like "Short LL#2A": The sweep sample waits until the clav-like sample has finished sounding before it kicks in, leaving the player with the full eight-voice polyphony instead of access to only four voices. The playability of most banks suffers because they ignore this clever bit of programming. A final word of caution: Use of the modulation wheel may cause dizziness. Applying modulation to "Lush 2" results in a warbling sound reminiscent of an angry swarm of seasick bees.

In spite of its weaknesses, this disk certainly contains enough inspiring sounds to justify the price tag. Players with reasonable expectations and a desire to recapture the warmth of analog synthesis should give Kid Nepro a chance.

—Andrew Roberts

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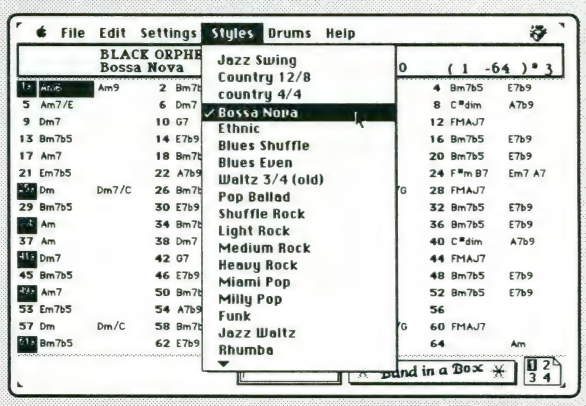
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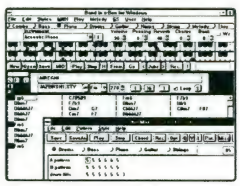
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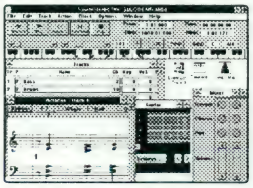
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REEL WORLD NOTEBOOK

JEFF RONA

DOMINUS MATRIX
THEATER IN THE SURROUND, PART 1

THE LAST FEW RECORDING SESSIONS I've done have been, thankfully, rather unengaging. So I thought I'd take some time to explain a bit about one of the unique challenges in synthesis for film: the Dolby stereo matrix. Dolby Surround Sound has become an international standard for 35mm film and the movie theaters that play back in stereo. How does it work? And how can you avoid its pitfalls while taking advantage of the effect of theatrical Surround Sound?

A Dolby stereo movie theater is equipped with three sets of speakers behind the screen and a set of speakers that "surround" the audience (see Figure 1). Each set is capable of handling a discrete track of audio. The three front speakers handle the majority of sound. The purpose of the third, center, speaker is to help compensate for very wide screen formats (so as not to leave a "hole" in the sound). This need comes from the pre-shoebox-size "Megaplex" theater days when most movie theaters were caverns equipped with big, wide screens.

Though standard Dolby stereo systems contain four tracks of audio information, the sound is actually encoded and placed onto two physical tracks of the 35mm motion picture film. This keeps Dolby stereo films compatible with ordinary stereo film with no center or Surround channels. By what magic do the Dolbians get four channels onto two tracks? The basic answer is, "by encoding unique phase relationships between the channels of the original audio tracks and then looking for those unique phases upon playback." In other words, they muck around with the sound. When the final film soundtrack is mixed (with dialog, effects, music, and so on), a black box called a Dolby Encoding Matrix is used to combine the four channels (left, center, right, and Surround) and process them by altering certain phase relationships and then delivering an "encoded master" on two tracks, which is put onto the 35mm movie prints. This is called an LTRT (Left Track Right Track) master. The projector in the movie theater plays the LTRT two-track recording on the film through a Dolby Decoding Matrix and recreates the original four tracks around the room. Well, almost. Some of the spatial data is actually lost in the matrix encoding process. Let's take a closer look at how the matrix does its thing.

- Sound on the film's left channel comes out of the left speaker.
- Sound on the film's right channel comes out of the right speaker.
- Sound occurring *simultaneously* on both channels of the film come out of the center speaker only.
- Sound on both channels, but 90° out of phase is placed into the Surround speakers.

A Dolby encoding box is used when the movie sound is mixed and mastered to produce the special phase shifts, and the decoding box used at the movie theater looks for those relationships and sends the sound to the appropriate channel(s).

There is also a limitation in a Dolby stereo soundtrack recording for both the dynamic range and the frequency bandwidth. Both are somewhat limited relative to a standard digital or even analog studio recording. Much of the limitation is due not to the Dolby process, but to the fact that the final mix goes onto an analog track on the film — a technology that dates back to the 1930s and has changed very little since.

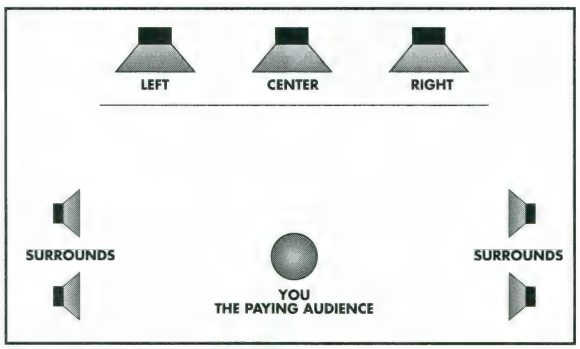


Fig. 1. A typical Surround Sound speaker configuration.

The good news is you don't really have to worry about things such as LTRT mixes or phase relationship generators. That's done by the engineers making the final mix of the movie soundtrack, including the dialog and effects as well as your score. Your job as a film score composer (or engineer) is to deliver music in a format that will be "friendly" to the Surround Sound matrix and reproduce well under the conditions of film sound. This does require some special handling and technique. A lot can go into mixing music for Surround Sound, and I can't really touch on all of it here, but I do want to discuss some of the special techniques that will help Surround Sound work effectively for those of you doing sound design, composing with electronic instruments, or possibly even delivering completed scores from your home studio.

The only way to truly know how your music will sound in Dolby stereo is to monitor it through a Dolby decoding box while programming, composing, or mixing. When a film is to be released in Dolby stereo, an agreement is signed with Dolby Labs, and a decoder (called a 4-2-4 box) is made available to the composer. Though it is expected to only be used for the few days while mixing the music, I have been able to convince Dolby to let a 4-2-4 box stay with me for the entire duration of a project. That way I can hear a very close approximation of how my programming and music will sound in the actual movie theater. There are numerous opportunities for problems to crop up in using Dolby Surround, so monitoring everything through the decoder can help you avoid several problems. Again, the Dolby encoder is only needed by the final film sound engineers; the 4-2-4 box simulates how the sound will be spread around the theater at playback.

If a Dolby 4-2-4 box is not available, there are now additional options available. Stand-alone Dolby decoders are available in many A/V stores. There are several professional decoders on the market as well. In addition, a growing number of mid- and high-end consumer audio receivers now offer a function called "Dolby Pro Logic." This is, in essence, the same technology found in the Dolby box, and is licensed from Dolby. These units may differ in channel separation and noise factors, but are still useful tools in the film composer's studio. The receivers have the added benefit of having the extra channels of amplification needed for the center and Surround speakers. Otherwise, if you use a Dolby decoder or any of the Dolby clones, you will need to get additional amplifiers.

Now that we've looked at the basics of Dolby Surround Sound, in the next installment I'll discuss the problems of Dolby, and provide some specific tricks that will get your Dolby stereo mixes sounding good.

Until then, remember, it's only a movie.

Jeff Rona is a composer, synthesist, writer, and educator in Los Angeles. He was chairman of the MMA for five years, and is currently coordinator of the UCLA Extension electronic music program.

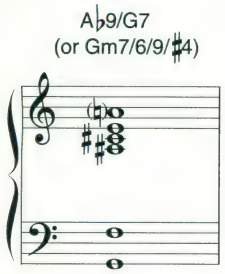
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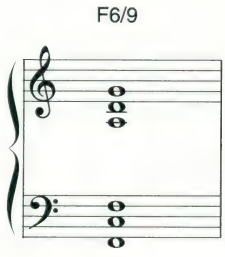
DAVE STEWART

BRIDE OF THE SON OF CHORD VOICINGS

IT IS TEMPTING AT THIS STAGE OF our exploration of chord voicings to leap straight into the deep end with a complex shape like this:



However, that would only be tantamount to showing off, and might, in a worst case, lead to a sleazy sequel like this:

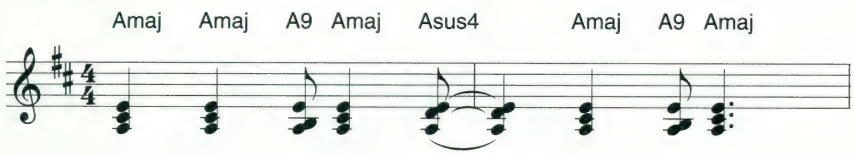


Ugh! Rather than striking out in that direction and having to tiptoe round minefields of such cocktail jazz clichés, I'd prefer to concentrate on slightly less sophisticated voicings and look at how we might make them more expressive and elegant.

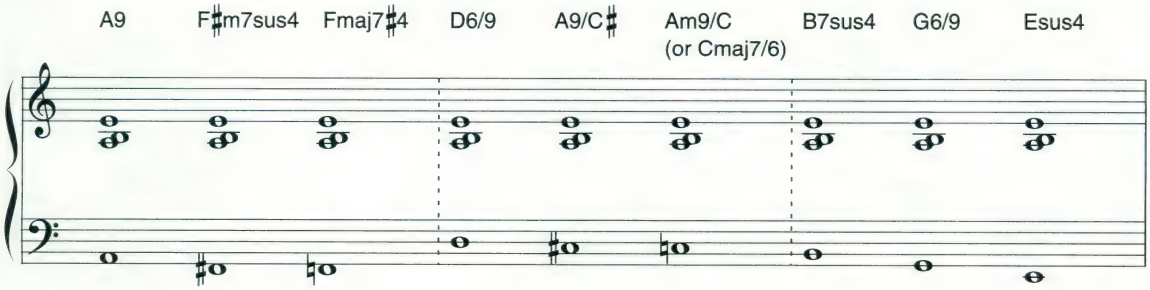
The following chord has cropped up more

Dave Stewart, who is half of Rykodisc recording act Dave Stewart & Barbara Gaskin, is currently undergoing therapy for the distressing condition which causes him to ruin perfectly good music articles by inserting gratuitously offensive jazz chords. He will be back next month, but we beg the reader's forbearance in dealing with this embarrassing personal problem. Dave and Barbara can be contacted via Broken Records, 18 Yeomen Way, Hainault, Ilford, Essex IG6 2RN, England.

Ex. 1. This chord pattern — much loved by guitarists — resolves back to the A-major triad.



Ex. 2. Altering the bass note can produce a progression that leads in a new harmonic direction.

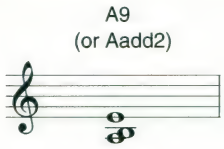


Ex. 3. The repeated E *on top of these chords creates a simple melody.*



All music, even the gratuitously offensive sort, by Dave Stewart © 1993 Budding Music.

than once in the last two of my columns:



From a classical point of view, this could be seen as a kind of an altered triad, in which the third has been moved down to a second:

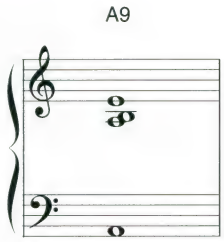


In much the same way — but by an upward, rather than downward, movement — a "suspended fourth" chord is created:



We can take advantage of the expectation that these "altered" chords will resolve back to a major triad by writing passages like that shown in Example 1. This style is much loved by our guitarist brethren, who have woven it into countless jangly intros (usually in the easy keys of *D* or *A*) down the ages. On a historical note, I believe it was originated by British "Merseybeat" group the Searchers, and appropriated by U.S. 12-string janglers the Byrds. Later rekindled by the Pretenders and now recycled by legions of '90s guitar groups, this sort of simple movement still has charm if used sparingly.

Let's look at the ninth, or "added second," voicing and see what can be done with it. Played in its basic form with an octave bass note added, the chord has a stately, slightly austere sound:



Altering the bass note produces a surprising number of pleasant-sounding new chords, several of which could take us off in a new harmonic direction. (See Example 2.) If we were of the pop persuasion, we could make the chord sustain over a simple bass line of *A*, *F♯m*, *D*, *E*, thus producing that familiar "hum" which the American record-buying public seem to enjoy so much . . . although this may strike some as yet another tiresome corporate rock cliché, it is — to my ears — infinitely preferable to the straight triads favoured by some bands.

Example 3 provides an example of a more adventurous approach to our simple *A*9 shape. This follows (more or less) the series of bass notes outlined earlier (with the exception of the last two chords, where I have gone off the rails for artistic reasons), but the left hand is fleshed out with some juicy fifths and ninths, and a simple melody grows out of the repeated *E* which tops each chord. Interestingly (or crushingly boringly, if your sole interests are beer and baseball), the last chord is, technically speaking, not a million miles away from the frightening shape I threatened you with at the beginning of the article, but in this context it seems less intimidating. It is, however, definitely of the jazzy ilk, and might, under certain unfortunate conditions — oh no — lead one in the direction of — no, please don't — a sleazy sequel like — please, I implore you — this:



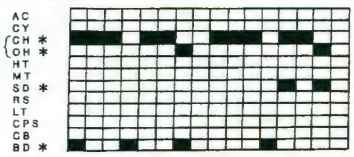
Yaarggh!! Bleucch! And it was going so well. . . .

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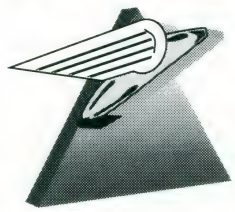
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By Michael Marans

ONE OF THE PRIMARY BENEFITS OF owning a sampler is that you can load in your own sounds. Don't like the factory piano? Sample your own. Strings too nasal? Record new ones. Drums too wimpy? Bang out the power toms of doom. But while the concept may be appealing, most people find the actual task of creating new sounds a tad overwhelming. Not because it's hard to record sounds; not because it's terribly difficult to map the samples to the keyboard; not because a particular user interface is convoluted beyond all hope (though many of them are). Rather, the main deterrent to custom sample creation is looping — the process whereby a single piece of sample data is repeated over and over again for as long as a key is held. It's really not much of a trick to find a suitable piece of data to loop, but getting the start and end points to match up so that the loop sounds like a naturally sustaining tone can be a most frustrating task.

For several years, sound designers have relied on computer-based graphic editing programs to provide the tools necessary for creating seamless and (hopefully) undetectable loops. Some of these tools — most notably crossfade looping, in which a sophisticated algorithm is used to blend the sample data around the loop points, thus eliminating the sudden timbral shifts that result from dissimilar start and end points — have found their way into the operating systems of many samplers. But when it comes right down to it, most musicians just aren't willing to invest the time and energy it takes to create a really good loop.

That may soon change, thanks to Jupiter Systems' Infinity, a set of sample-editing tools for the Macintosh. Although it contains the typical variety of cut, paste, reverse, clear, normalize, etc. editing utilities, Infinity is different from other editing programs in that its primary orientation is toward looping. To that end it provides three never-before-seen algorithms — the Rotated Sums Looper, the Spectral Phase Randomization Looper, and the Freeze Looper — that offer novel and, in general, highly effective approaches for capturing that elusive perfect loop.

Overview. Unlike other sample editors, such as Digidesign's Sound Designer or Steinberg's Avalon, Infinity contains no sampler drivers. In other words, your sampler can't talk directly to Infinity; sound files must be stored in AIFF or Sound Designer (or SD II) format and loaded into the program from disk. (Also, unlike other sample editors, you can't audition a sound directly from disk; you must first load the file into RAM.) Sounds can play back through the Mac speaker (ugh), or you can use any Digidesign sound card for 16-bit stereo playback. A direct link for SampleCell (I and II) is also provided. The program requires a fast Mac; for our tests we used a IIci with 12Mb of RAM (eight of which was allocated to Infinity) and a Pro Tools Audio Card.

Screen layout is as you would expect, consisting primarily of a main view window that contains a large graphic representation of the waveform (see Figure 1). An overview of the waveform is also displayed in the uppermost portion of the window. Multiple files can be open; windows can be tiled or stacked. The horizontal and vertical scales are progammable, with the vertical axis calibrated to display percent of full scale or decimal sample values, and the horizontal scale displaying samples, time, or SMPTE time. Functions are accessed via drop-down menus and a simple toolbox; key-command equivalents are available for a number of operations.

Sample data is selected in the standard fashions, via selection cursor (click-and-drag) and sizeable zoom box. Zoom resolution can be set in a variety of ways, including a handy return-to-maximum zoom out via double-click. Zoom operation does have a couple of noteworthy weirdnesses. For one thing, if you zoom in and then use the full zoom out menu command, only the horizontal axis zooms out; the vertical axis remain unchanged. Another: When you paste data into an empty window, the waveform is displayed fully zoomed in. You need only double-click in the window to bring your display back to "normal," but until you realize what's happening, you could spend a few moments scratching your head wondering just where in the heck your newly copied waveform is hiding.

Operating the program is, in general, very easy. Dialog boxes are thoughtfully complete, functions are clearly labeled, and a "process monitor" keeps you informed of the computer's status throughout all DSP operations. We did run into several minor annoyances, including some anomalies in the way the graphic loop pointers operated and the lack of numeric feedback while adjusting scroll bar parameter sliders. To keep things in perspective, we do want to point out that most of our complaints fall into the nitpicking we-want-it-perfect category.

There are, however, a couple of larger complaints that need to be voiced before we dive into the nitty-gritty of the program. First: Infinity does not support multiple loops, a drag if you're one of those folks that like to use independent sustain and release loops. Second, in the process of creating a loop, Infinity writes multiple iterations of the loop it has created, starting at the end point of the first loop and extending to the end of the soundfile, overwriting the data that existed in this location. In other words, the only way you can "turn off" loop-in-release, so that the sample stops looping on key-up and plays through to its natural end, is by splicing the desired data from the original sample back onto the looped sample at the point where the loop ends — not our favorite way of working. One other glitch: We heard a fairly substantial audible click each time a file finished playing back and intermittently between DSP processes. The click isn't in the file itself, so there was no worry about corruption. But it was loud enough to be annoying. According to Jupiter Systems, the problem occurs in some systems and not in others; they are currently looking

JUPITER SYSTEMS INFINITY

Description: Sample looping and editing software for the Macintosh.
Features: Four loop-creation algorithms. Cut and paste sample editing with undo. Reverse, mix, clear, normalize, silence, and gain-change utilities. Real-time loop pointer adjustment. Attack and loop segments mergeable after creation of loop with selectable crossfade. Programmable automated selection of loop points. Support for stereo files. Selectable zoom resolution. Direct links to Digidesign SampleCell (I and II).
System Requirements: Any Macintosh capable of running System 7, System 7, minimum 4Mb RAM. 68040 Mac, 8Mb RAM, and Digidesign sound card highly recommended (32-bit mode required when using sound card).
Suggested Retail Price: $495.00.
Contact: Jupiter Systems, Box 697, Applegate, CA 95703-0697. (800) 446-2356, (916) 878-6666. Fax (916) 878-8577.

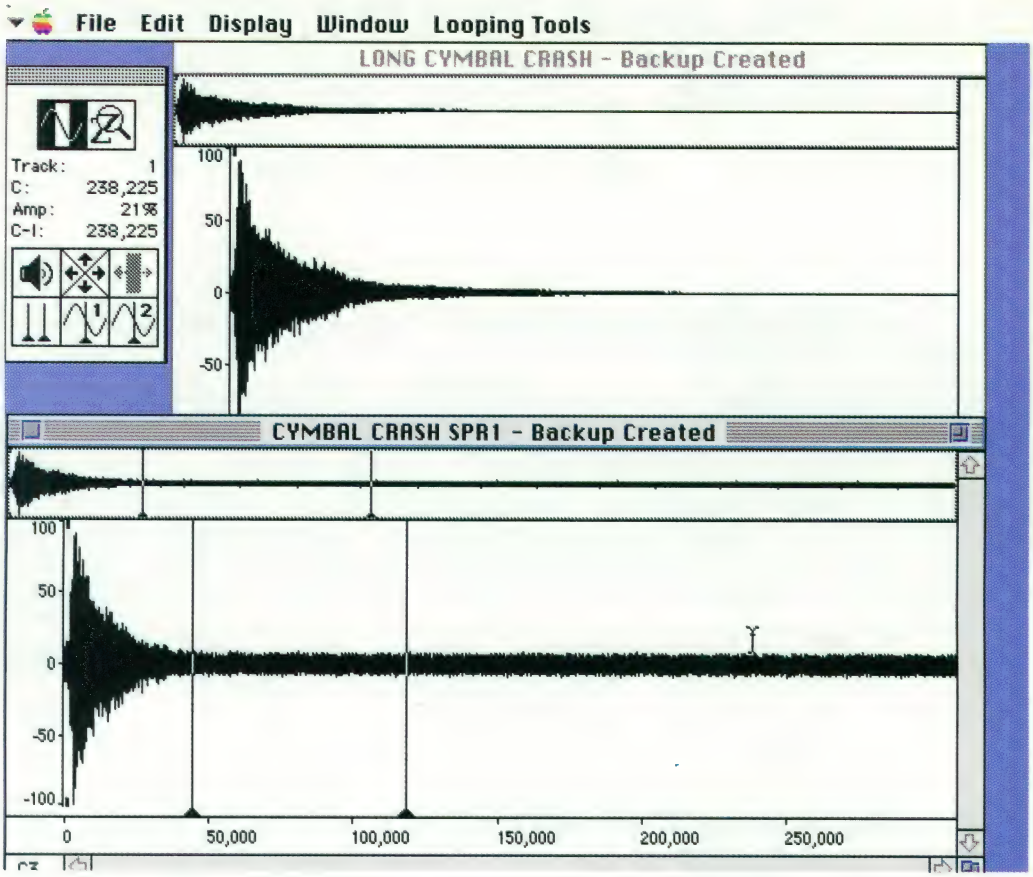


Figure 1. Using Infinity's Spectral Phase Randomizer algorithm, we were able to successfully loop a crash cymbal — traditionally one of the more difficult sounds to loop. Notice that as part of the loop creation, the program has evened out the amplitude decay that was present in the original waveform. Also notice that the loop data is written out to the end of the sample, which means you can't use the sound's natural decay on key-up unless you splice the original data back onto the looped file.

for a solution.

Lastly, though the program supports stereo soundfiles, parameter settings and subsequent operations in all of the looping algorithms affect both halves of the file equally and simultaneously; there are no provisions for dealing with each side of a stereo file independently. Whether you consider that a blessing or a bummer likely depends on the way you're used to working.

Crossfade Looping. The first algorithm offered by Infinity is a relatively standard crossfade loop, in which part of the data at the beginning of the loop is blended with part of the data at the end in order to create a seamless transition between the two. You're given control over the crossfade length and taper (continuously variable from linear to equal power), and you can audition the crossfade before committing to it.

To set up a loop for crossfading — or for that matter, for any of the four loop processes — you simply click on the loop icon in the tool box; Infinity automatically places the loop markers at reasonable starting points. You can then move the markers as desired, including in real time while listening to the file. A small inconsistency in the user interface makes it appear that you can't move a loop marker after playback is initiated, but in fact you can. It's just that once playback has begun, the cursor doesn't change to an arrow when you grab the loop marker, as it normally would. Also, you can't see the readout of loop coordinates unless you move your cursor back into the main view area (the loop marker grab point is located in the very bottom of the display, below the horizontal axis line).

If letting the computer find your ideal loop point is more to your liking, you'll definitely want to use Auto-Scan, which searches the wave for user-programmed values to use as loop points. Two parameters are provided. The first, Matching Threshold, tells Infinity how closely the loop start and end points must match. The second, Match Trial Points, tells the program how many points in the sample — from 10 to 1,000 — it should search when looking for points that fall within the threshold criteria. For the most part, we were able to get acceptable loop points using Auto-Scan. User tip #101: Unless your sample is remarkably even in both amplitude and harmonic content, avoid excessively high threshold levels, as Auto-Scan will simply search in vain for a while, then come up empty-handed. You can, of course, manually set the loop points. And, as you might expect, loop start and end points are graphically represented in a standard crosshairs-style loop window, so you can match them visually as well as audibly.

Anyone with a bit of experience doing crossfades has undoubtedly run into the following problem: The crossfade eliminates the click/pop at the loop-start/end transition, but it introduces an amplitude/harmonic hump — due to phase-cancellation of certain frequency components and build-up of others — thereby leaving you with a glitch-free, but still unacceptable, loop. What's a poor sound designer to do? How about trying the. . .

Rotated Sums Looper. This algorithm takes sonic irregularities that lie within the loop and distributes them randomly throughout the loop. It does this by adding together a number (from 1 to 100) of random rotations of the loop. Why would you want to do that? Well, in the case of a crossfade-induced bump, the energy of the bump would be randomly distributed through-

PROS & CONS

Pros: Powerful, highly effective looping algorithms. Easy to learn and use.
Cons: Multiple loops not supported. Some minor bugs and user-interface inconsistencies.

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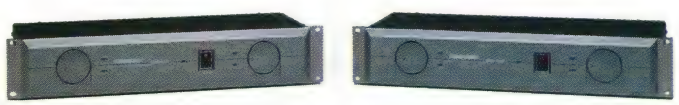
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out the entire loop, resulting in a much smoother, more even loop than the straight crossfade could provide.

Before executing this algorithm, you must have a glitch-free loop, otherwise the energy of the click will be distributed within the loop, which, depending on the number of rotations performed, will ultimately manifest itself as unwanted noise. The same is true of any naturally occurring noise, such as guitar fret noise or stringed-instrument rosin/bowing.

Parameter control is simple enough: You get to choose the number of rotations. After that, it's all up to Infinity. You do, however, have the option to process the loop by itself, then merge the results of the rotation processing with the attack of the sample using crossfade-style tools. To that end, you're given control over crossfade length, taper, and the number of points that are "tested" for suitability as the merge start point. Merging can also be performed simultaneously with the processing of the loop.

The reason for independent control over loop and attack-segment merging is that the Rotated Sums Looper is a random function; process the same data ten times (using the same parameter settings) and you'll wind up with ten different sonic results. They'll be similar, mind you, because the amplitude and harmonic character of the source wave remains unchanged. But there will be subtle variations, and it is at this point — as is always the case in the imperfect world of sample looping — that an aesthetic judgment must be made to determine which loop is the "right" one. Once you've found "it," you can then merge the attack data as desired.

We tried the Rotated Sums Looper with a variety of source material, including one choir/synth stack that in the past had been a bear to loop, even though we had some very sophisticated processing tools at our disposal. The RSL loops were even, smooth, and remarkably easy to create. That choir/synth stack? Well, let's just say we've gone back and re-looped our original. Great stuff. (Wait — there's more).

Spectral Phase Randomization Looper. Otherwise known as the SPR, this algorithm works similarly to the Rotated Sums Looper, but in addition to randomly rotating loop data, it also randomizes the phase of the loop's individual spectral components. The result is a smoother loop than might be attained using the RSL.

As with the RSL, the SPR only requires that you adjust one parameter, called Pre-Condition Data. This is used to taper the amplitude of the data at the loop start and end points so they begin and end at zero, or no amplitude. Values range from 0 to 100; the higher the value, the greater the length of the taper. The reason for tapering the data is so that any pops or clicks that might be present at the transition from loop end to loop start will be eliminated and, consequently, not be distributed throughout the loop.

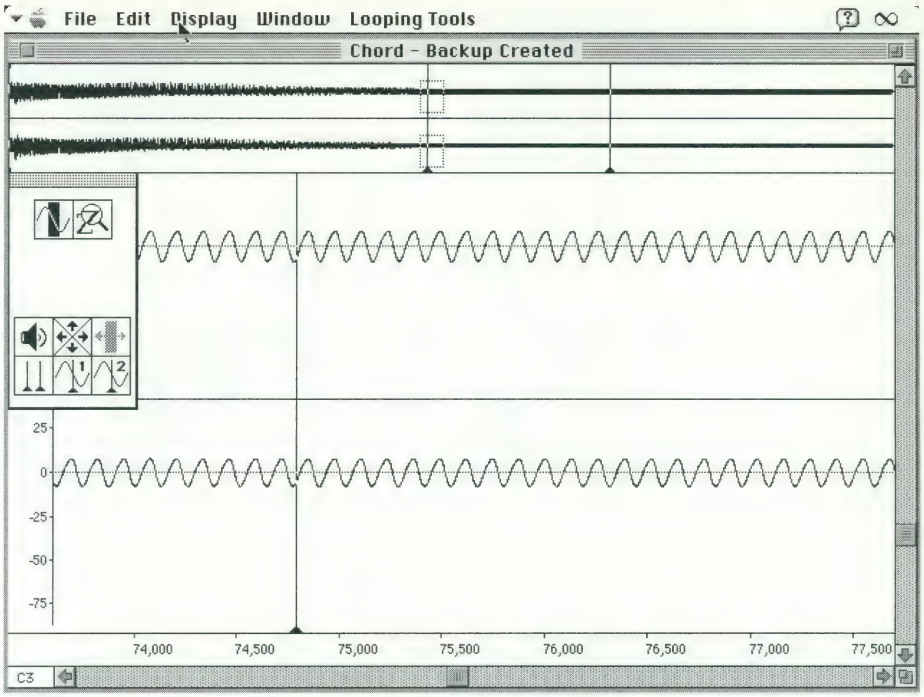


Figure 2. The Freeze Looper algorithm analyzes the harmonic content of the loop, then creates a waveform that is representative of the loop's overall spectrum. Shown here is a close-up look at a "frozen" stereo guitar chord.

Contrary to what you might think, tapering the wave data does not result in an audible change in amplitude at the loop start and end points, because as part of the randomization/rotation process, the amplitude energy is distributed equally throughout the loop. On the other hand, the length of the taper can have a pronounced effect on the loop's timbre, because the greater the taper, the more spectral energy there is near the center of the loop as compared to the edge. Consequently, the resultant loop will have a spectral content that favors the spectral content of the data at the loop center. This can be used to your advantage to bias the timbre to a particular frequency content. Due, however, to the random nature of the algorithm, it may take several tries to get the desired results. (Guess that's why there's an undo command.)

Once you've got the desired loop, you can merge it to the attack portion of the sample using the same crossfade tools provided in the RSL.

We had good results using the SPR on two sounds that are traditionally difficult to loop: guitar chords and crash cymbals. In both cases, the ambience ("airiness"), general clarity, and overall timbre of the sounds was maintained to an acceptable degree. We have to qualify the results with the word "acceptable" because once the sounds were looped, the harmonic and amplitude variances that occur over time when these sounds are allowed to decay naturally have been eliminated. Such is the nature of looped sounds. Still, the results were substantially better than our previous efforts using conventional tools.

One thing to be aware of when using the SPR: The resultant loop will always be reduced to a length (in samples) that is a power of two — 8,192, 16,384, 32,768, etc. So if you start off with a loop length of, say, 64,000 samples (about 1-1/2 seconds at a 44.1kHz sample rate), your loop will be cut to nearly half that size (32,768 samples, the next-lower power of two). Under most circumstances, your ears will most assuredly detect a difference between a loop 1-1/2 seconds long and one that's 3/4 second long, so this isn't exactly a desirable byproduct of the SPR process. To maintain your original loop length as closely as possible, start with a length that's only marginally greater than a power of two — say, 66,000 or 132,000 samples. That way, when the length is reduced to the nearest power of two, it will only be shortened by 1,000 samples or so — a relatively insignificant amount. If your loop length simply *has* to be somewhere far away from a power of two, well . . . maybe that's just another one of those things that makes looping so fun! (In cases where maintaining precise loop length is critical, you can always use the RSL, as it doesn't affect the loop's length.)

Freeze Looper. As the name implies, this algorithm "freezes" the timbre of an instrument, in much the same way that a single-cycle loop does. The difference between the two, however, is substantial, in that the Freeze Looper doesn't merely take a snapshot of the harmonic series at a given moment in time, as does the single-cycle loop. Rather, it analyzes the har-

monic content of the selected loop, then creates a waveform that is representative of the loop's overall spectrum. That waveform is then iterated for the entire length of the loop, which, as in the case of the SPR, will always be a power of two.

Parameter control is identical to the SPR: Pre-condition data. Merging of the loop and attack portions takes place during the loop-creation process. One other note (literally): In order for the algorithm to work properly, you must tell the program the approximate base pitch of your sample. (The program has an auto-pitch detector — it just needs to be guided a bit.) We had more than a bit of fun lying about the pitch. (Fooling a computer is one of life's little joys.)

We had very good luck with the Freeze Looper on harmonically simple sounds, such as trumpet and electric bass. Just for the heck of it, we tried it on a strummed guitar chord (Figure 2). The results were surprisingly good, though not nearly as realistic as with the SPR. Still, you could use the Freeze Looper as a means of creating harmonically interesting waverforms that could later end up as base spectrums for synthesized timbres.

Waveform Editing. Just a quick rundown here. Infinity gives you all the usual sound design basics, such as cut/copy/paste, invert, reverse, clear, normalize, gain-change, and mix. Processes can be performed independently on the left and right sides of a stereo sample.

As we mentioned earlier, the program is designed primarily for looping, so the utilities are pretty bare-bones. Still, it's nice to have them on-board, so you don't have to jump to a more full-featured sample editor to carry out some basic operations.

Undocumented Features. A couple of things you won't find in the manual: When you select for playback only one half of a stereo file (or a portion thereof), the sound may or may not come through the correct audio channel. (Maybe the program has a left-brain/right-brain identity complex.) You'll also find that when you paste a copied file to the beginning of the source file, the original file disappears from the screen. It still plays back, you just can't see it until you close and then reopen the file. And speaking of copied data, loop pointers aren't included when you copy a waveform into a new file.

Finally, a blend function lets you program a taper for cut, paste, and mix operations, so that you can create anything from a butt-splice to a 2,000ms crossfade. But if blend is off for one half of the operation — say, when the data is cut — and on for the other — say, when the data is pasted — the blend parameter is ignored entirely. This means you can't, for example, directly mix two waves where one is instantly on (or off) and the other fades in. It's either all or nothing.

Conclusions. After living with a looping tool set that, while powerful, hasn't undergone any substantial changes or improvements in functionality for the last five or so years, it is an absolute pleasure to welcome Infinity onto the scene. Not only does it provide powerful new loop algorithms — ones that facilitate the looping of previously "unloopable" sounds (or, at least, sounds that were difficult to loop) — it's easy to use. You don't have to be an expert sound designer, nor do you have to have the patience of a saint to try and try and try again to get a good loop; for the most part, they just sort of happen. True, you still need to use some aesthetic sense, much as you do with any synth programming — after all, simply knowing what all the buttons do is no guarantee that you'll come up with good sounds. But Infinity paves the way for you with simple operation, a clear interface, and remarkably effective tools.

Yeah, it's got a few minor bugs, and we've given the company our wish list of things we'd like to see fine-tuned. But all of that is really secondary, considering what this program *does* do. If you've previously avoided sampling for fear of the dreaded loop, or put up with poor loops because your tools just didn't allow you to get better ones, Infinity will be a most welcome addition to your programming arsenal.

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SCARY LICKS

Continued from page 30

on an unweighted synthesizer keyboard, they can be played even faster. Make sure to use a punchy sound with a quick decay, though, so that all the ridiculous little fast notes will be audible. You don't want to go to all of this trouble just so the audience will think you're playing a sound-effects patch.

See you next time. Leave the door open on your way out, so the smoke will clear.

Ex. 25. Many mutant possibilities lurk beneath your two hands. (See page 30.)



Ex. 26. Try this cadence — like a chainsaw running out of gas. (See page 30.)



Ex. 27. Okay, okay. Here's a nice rhythm pattern in C. (See page 30.)



Ex. 28. Still in C, with a little more drive. Tempo: as fast as possible. (See page 30.)



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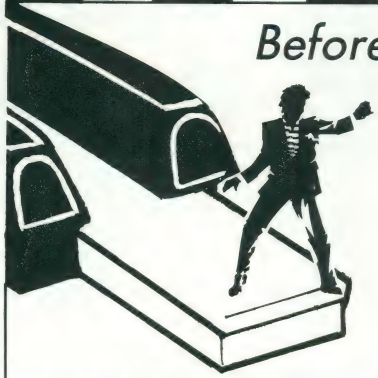
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A SETUP FOR ANY BUDGET

Continued from page 86

a DA-88 track with SMPTE, and feed the signal into Digidesign's SMPTE Slave Driver ($1,295). You won't be able to do digital transfers, but the systems will lock together.

Whether you mix to hard disk or tape, ultimately you'll want to take product out of your studio. The best medium so far: DAT. Recommended pro-level machines include Tascam's DA 30 ($1,299), Panasonic's SV3900 ($2,220) and SV3700 ($1,690), and Sony's PCM-2300 ($1,640). If you're looking for a portable model, check out the Marantz PMD700 ($2,500) or JVC's XD-P1-PRO ($1,740).

A good high-end sampler is an essential part of any pro setup. Best bets: E-mu's EIIIxs ($4,495), Roland's S-770 ($7,995), or Akai's new S3000 ($4,995). All of these instruments feature excellent sound quality, lots of polyphony, and plenty of room for RAM expansion. In the synth world, consider the expanded timbral capabilities offered by the Yamaha SY99 ($3,995), Kurzweil K2000 ($3,850 with the sampling option), and Korg's 01/W ProX ($5,250). You may also find it easier to control your MIDI rig from a master keyboard. We recommend either the Peavey DPM C8 ($2,000) or the Fatar 2001 ($2,275). As for the multiport MIDI interface needed to tame a large rig, Opcode's Studio 3, 4, or 5 ($320, $495, and $995, respectively) should fill the bill on the Mac, as would MOTU's MIDI Time Piece II ($595), which, by the way, will also work with the PC ($695).

Hmm. Better upgrade the effects too. Ensoniq's DP/4 ($1,495) contains a myriad of effects algorithms and actually contains four independent processors — one signal can be processed by all four, or four signals can be processed independently (or some combination in-between), which makes this a very versatile unit. Another good choice is the Zoom 9200 ($2,100), which also features four independent processors. Other hip pieces: Behringer's compressor/expander, the Composer ($479), Roland's SRV-330 reverb ($1,095), Sony's DPM-R7 reverb ($1,295), and the dbx 274 quad expander/gate ($449).

More gear means more inputs needed. Where space is a problem, the rack-mount Speck Electronics Xtramix ($3,295) could be the solution. It's got 20 stereo inputs, eight effects sends with eight stereo returns, eight busses, eight line returns, and a whole lot more, and it only takes up four rack spaces. In the more traditional console-type models, consider Soundcraft's Delta ($7,150 for the 24-channel version), Allen & Heath's GS3 ($6,495 for 24 channels), or Tascam's M2524 ($4,199).

Moving along the upgrade path: More and better microphones. Prime candidates include AKG's C 414 B-ULS ($1,199), a general purpose large diaphragm condenser mike, and the Brüel & Kjaer Series 4000 ($1,660) for sampling (go for a matched set of B & Ks for stereo sampling). And now that you're getting such great sounds, you'll want a monitor system to match. Try power amps from Bryston, Hafler Professional, JBL, and Crown. For speakers, you may want to move up to powered monitors, such as those made by Genelec and Meyer.

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Notation Software, such as Coda's Finale (Mac or IBM, $749) or Passport's Encore ($595); a double-speed CD-ROM drive; an optical drive; patch bays (go custom to avoid noise, but be prepared to pay the price); a SMPTE synchronizer (Time Line Vista's Micro Lynx, $2,995); a CD recorder (Marantz CDR600, $3,500); and surge protectors, uninterruptable power supplies, and line conditioners. And lastly, go for the only thing that separates your home studio from the high-priced, high-end pro facilities: a hot tub. After a long day in the trenches, you deserve a good soak. ■

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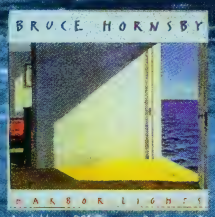
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LEXICON ALEX

RACK-MOUNT DIGITAL EFFECTS PROCESSOR

Pros: Lexicon sound at lowest price yet. Clever program chaining procedure for preset access via footswitch.

Cons: No MIDI input. User has access to only three parameters with 16 possible values each.

Main Features: Digital reverb, plate, delay, echo, flange, and chorus effects. Six environment simulations (three halls, chamber, and two rooms), inverse and gated reverb, four plates. Sixteen user presets, each with three programmable parameters: decay (time, percent of regeneration, or flange feedback), delay (predelay time for reverbs, delay time for chorus and echoes, delay spacing time, or flange depth), and effect output level. Sixteen factory presets. Left/mono and right 1/4" inputs and outputs. Footswitch jack for bypass and program select (tip-ring-sleeve for dual-footswitch operation). External wall-wart power supply.

Suggested Retail Price: $399.00.

Contact: Lexicon, 100 Beaver St., Waltham, MA 02154. (617) 736-0300. Fax (617) 891-0340.

IF THERE'S EVER A HALL OF FAME for effects manufacturers, Lexicon is sure to be one of the first inductees. When you buy a "Lex," it's bound to sound good. We're looking at a Lex this month — Alex, that is. It passes the test sonically: brilliant reverbs, plates, echoes, and chorusing and flanging thrown in to boot, all packed into a stubby (4" deep) single-spaced rack-mount unit that lists for less than a fifth of the price of its famous ancestor, the PCM-70. It also goes for considerably less than Lexicon's previous affordable wonder-boxes, the $549 LXP-1 and LXP-5. Lexicon can bring Alex to market at a new low by sacrificing a few "luxuries": full programmability, multi-effect processing, and — very important to many of us — MIDI. What's left is a superb-sounding digital reverb/delay/chorus/flanger/echo that will excel in performance and recording applications where manual effects selection will do the job.

Alex's front panel is about as simple and straightforward as they come. Separate knobs for the input, mix, and output levels make it quick and easy to adjust the system for different instruments. (It will work most comfortably in –10dBV environments.) A single LED glows green when signal is present and red when the signal is too hot; there's supposed to be an orange stage between the two, but it was too subtle for our eyes to detect.

A stepped rotary knob allows you to select one of 16 effects. The names of the 16 factory programs (presets) surround the knob. Press a button and you have access to the 16 user programs. The user programs are completely independent of the factory programs, so the front-panel effects names may not provide a clue as to what effects you'll get by dialing up a specific location. If you don't trust your memory, plan on keeping a list of Alex effects handy.

In the center of Alex's front panel is a stepped data knob, a two-digit multi-segment LED display, and a button for selecting any of the three effects parameters that you can adjust. Only *three*? Yep. They're stenciled on the front panel: decay, delay, and effects level. The display normally indicates the current program number. It blinks to indicate that it's showing a parameter value. LEDs next to the parameter names indicate which parameter value you're looking at. If you don't move the data knob within two seconds, the display will return to showing the program number. If you hit the parameter button again before time is up, the next parameter LED will light. You can adjust the current parameter value at any time by moving the data knob.

The actual parameters that you can adjust depend on the effect. In a reverb or plate program (but not in gated or inverse reverbs), decay defines the amount of time in seconds that it takes for the sound to die away. The range of possible values depends on the size of the simulated room, which is defined by the selected program. At 15 meters, the tiled room is the smallest, allowing decay times of from .15 to 2.23 seconds. The large hall is a virtual 60-meter space with decay times ranging from .60 to 8.9 seconds. Room sizes and decay settings for plate reverbs are comparable to those used by medium-sized reverbs. Decay time for inverse and gated reverbs is measured in milliseconds. Available values for both are identical, ranging from 150 to 382ms. Alex's comprehensive manual, which covers the equivalent of about four pages, contains a table of all possible parameter values, a necessity because the display will only show a number from 1 to 16.

The decay parameter plays different roles in other Alex effects. In flange programs, it sets the feedback level of the signal. In chorus, echo, and delay effects, decay equals the amount of feedback. The greater the feedback, the more repeats you will hear.

Likewise, the delay parameter serves different purposes in different effects. For all reverbs (plates, inverse, and gated included), it determines the amount of predelay. In a flange program, it sets the depth of the effect. For echo and chorus effects, delay is the time between reiterations of the input signal; the shorter the delay, the more echoes you'll hear over a given amount of time. Delay in a delay program defines the amount of time before the first of four equally spaced repeats (the maximum number possible) of the original signal. For the record, maximum echo and chorus delay time is 1,500ms, 505ms for delays. (Yes, 1,500ms for chorus is pretty extreme. It just keeps going, and going, and going. . . .)

There are only 16 possible values for any parameter, and the scales are quasi- exponential. From the low end through the middle settings, the resolution is greater than at the upper end, where the value in some cases is doubled from one setting to the next. Exceptions to this rule include the effects level, which goes from off to –28dB, then upward in gain by 2dB steps to a maximum of 0dB. Trouble is, the resolution for all parameters is too coarse — even at the low end of the scale — making it difficult (or impossible) to create timing-critical effects, such as synchronized echoes. To help you out, Lexicon can provide a chart of delay note values (triplets and straight values like 32nds, 16ths, and eighths) and tempos for each of the 16 pos-

Effects icon Lexicon sinks to a new low (price-wise) with the Alex. There's no MIDI, but ooh, that Lexicon sound!





AudioView's main screen provides easy access to the most common functions via graphic buttons (top). The waveform occupies the majority of the screen; soundfile info is displayed at the bottom.

sible delay times.

The final front-panel button is labeled "store/clear." Obviously, the store function lets you save your own effects in any of the 16 user programs. You might think clear would reset all parameters to default values, but you would be wrong. Actually, it's for chaining user programs together so that you can step through them with a footswitch. Cleared programs are either skipped or considered boundaries by Alex's chain function. To set Alex to skip cleared programs, set the program-select knob to effect 1. If you want to switch between effects 1 and 2 with the footswitch, all you have to do is clear effect 3 and dial up effect 2. Now Alex will cycle back and forth between the first two effects with each step on the footswitch. For the next song, you might want to step from effect 4 through 8 and then back to 4 and 5. As long as 3 is still cleared, all you have to do is clear effect 9 and turn Alex's program selector to any program between 4 and 8. Now steps on the footswitch will cycle through effects 4 through 8 and back to 4. You'll be cool as long as you don't need more than 16 different effects.

Using a properly wired dual footswitch, you can step through effects and switch bypass mode in and out. A battery-backed global parameter lets you set Alex to work with either a momentary or a push-on/push-off footswitch. If you only have a single footswitch, you can use it to step through effects by pushing the plug only halfway in, or to work bypass by plugging it all the way in.

In terms of sound quality, Alex is a Lexicon through and through. Reverbs shimmer (the reported bandwidth is 20Hz-15kHz, +1 to –3dB), echoes sound as clear as the original, and we like Alex's chorus better than that of our LXP-5. Alex isn't a multi-effects processor and it doesn't have MIDI, but if manual program selection, coarse parameter settings, and a limited number of programs will do, it's ideal. We can recommend it for use in any recording or live performance rig for anything that needs crystal-clear processing. *—Mark Vail*

VOYETRA AUDIOVIEW

DIGITAL AUDIO WAVE EDITOR FOR WINDOWS

Pros: Inexpensive. Convenient user interface.

Cons: Performs some commands too slowly. Lacks EQ, time compression, and markers. Introduces clicks and pops when pasting.

Main Features: Recording, playback, and non-destructive graphic editing of stereo digital audio files. Editing features include cut/copy/paste, amplitude adjustment (normalize, scale, noise gate, fade), echo effects, and file conversions. Fully functional mixer and CD player applications included. 5.25" and 3.5" disks.

Requirements: IBM-PC or compatible (minimum 20MHz 386SX with 2Mb RAM), Windows 3.0 or 3.1, sound card with driver for Multimedia Windows.

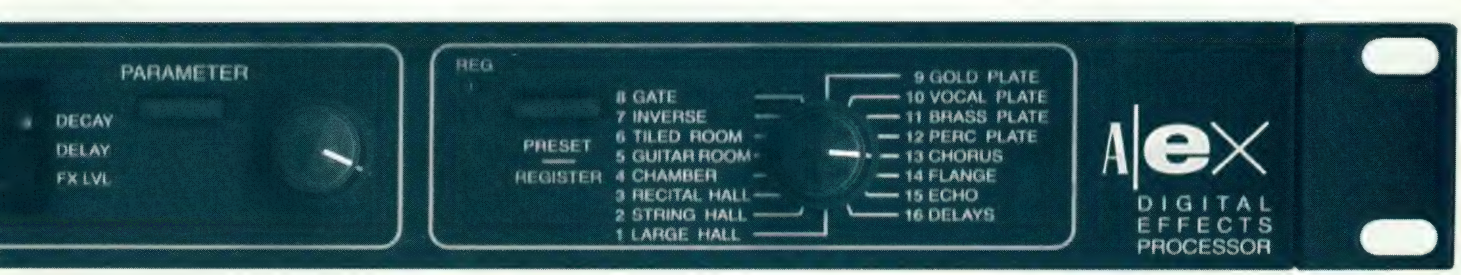
Suggested Retail Price: $79.95. (A $39.95 upgrade path is available to WinDAT owners.)

Contact: Voyetra Technologies, 333 Fifth Avenue, Pelham, NY, 10803. (914) 738-4500. Fax (914) 738-6946.

THERE WAS A TIME WHEN ONLY hard-core sampler owners knew the meaning of such arcane terms as sample inversion or DC offset. Now, just about anyone can engage in digital audio-speak, and enjoy the power that goes along with it. If this sounds appealing, Voyetra's AudioView may be perfect for you. Essentially, AudioView allows you to record or import stereo 16-bit 44.1kHz audio files (fidelity is dependent on your soundcard), and then fine-tune the files — or totally revamp them, if you're in an experimental mood. While AudioView performs most of the vital editing procedures — cutting and pasting, amplitude scaling, crossfading, and so on — it lacks sophisticated features such as equalization, time compression, and markers, all of which are found on Turtle Beach's slightly pricier Wave for Windows. Further, the commands AudioView *will* perform are sometimes executed slowly or introduce audio glitches, making it difficult to recommend AudioView to music professionals.

Installation of AudioView is a snap; the auto-install utility guides you through the process, automatically determining your system's hardware configuration and downloading the necessary files onto the hard disk. When the process is completed, the install utility neatly stores the files in a program group under Program Manager, and you're ready to start recording.

The operating environment of AudioView is intuitive and convenient, ideal for newcomers who had hesitated to make the jump into digital audio editing because they feared a steep learning curve. The most commonly used functions are represented in an icon-oriented button bar; with an impressive 20 commands a single





Why can't more instruments be supported by operating-system add-ons? Waveboy demonstrates the possibilities with software updates for the EPS-16 Plus and ASR-10. (Waveboy review begins on page 140.)

VOYETRA AUDIO VIEW

mouse click away, this is surely one of AudioView's most attractive features. Thanks to the convenience of AudioView's user interface, you'll probably spend a lot more time recording and editing than scrambling back to the manual to find out where the normalize command is hiding.

The more obscure editing commands are tucked away in pull-down menus. Transport controls and some commands from the file and edit menus have keyboard equivalents, but we definitely would have appreciated similar equivalents for the zoom in and out commands.

Of course, a large portion of the screen is devoted to displaying the audio file. You can customize the color of the wave, the background, and the peaks. (One curious aspect of AudioView: Although the program records in stereo, the display layers the left and right channels on top of each other; thus, it is often impossible to find a specific point on one channel because the other channel obstructs your view.) The bottom of the screen serves as a status area, indicating whether AudioView is in play, record, or a specific edit mode, the cursor's position in time, and so on.

Recording and playback are triggered by tape-recorder-style buttons. A separate record setup menu allows you to change parameters such as sample rate and bit-resolution. You can monitor the signal with the VU meter (although it lacks dB markings), changing the level from the source or from your soundcard's software mixer if necessary. AudioView also supported input from the digital audio ports on our Digital Audio Labs CardD. However, despite the manual's claim, we could not record at 48kHz. Voyetra tells us they were unable to duplicate the problem.

Once a digital audio file is created or loaded from disk (AudioView will import any file in the .WAV or .VOC format), the real fun begins: audio tweaking. Most edit commands require a region to be selected, and in general this process is handled very well. Simply point the mouse on the audio file display and highlight a region, then use the zoom-in command or display counters to locate and adjust start and end points precisely. AudioView also sports a helpful "mark range" button that allows you to select a region's start and end points in real time as you listen to the file.

After a region has been selected, it can be shortened or expanded with the standard shift-clicking technique; however, you'll run into a brick wall if you try to scroll beyond the edges of the screen. Most programs will accommodate this action by moving the screen from side to side. With AudioView, however, you must perform the tiresome task of zooming out, selecting a larger region, zooming back in again, and finally making fine-tune adjustments to the selected region.

You can move to the beginning or end of a file by double-clicking on the rewind or fast-forward buttons, respectively. Also, if a small region has been meticulously selected, but you have zoomed out to display the entire wave, a single zoom-in fills the screen with your region. However, the effectiveness of these features is somewhat diminished by the slow screen refresh time, and by the fact that the overview bar only displays time increments in seconds, with hash marks for tenths of a second — so if you zoom in just twice you'll begin to lose your bearings. Perhaps Voyetra assumed no one would bother to look this closely at the waveforms.

AudioView contains a full arsenal of edit commands to arrange and rearrange your audio file. Copy, erase, delete, trim, reverse, crossfade, and insert silence are all here, working and sounding great. Mix paste allows you to blend the contents of AudioView's clipboard (which operates independently from the Windows clipboard) with the selected region. We only wish that you could adjust the relative volumes of the two regions with this command; you have to perform scaling beforehand if you want to set up a specific mix.

Cutting and pasting is another story. The time it takes to cut or paste a 16-bit, 44.1kHz stereo sample is at least three times the length of the sample itself — a major deficiency in AudioView, considering that cutting and pasting are two of the most common procedures. Even worse, we noticed distinctive clicks and pops at the beginnings and ends of regions when pasting; not earth-shattering ones, mind you, but loud enough to scare away musicians interested in using AudioView in a professional studio. (The program doesn't perform crossfades or search for zero-crossings at region boundaries during cut or paste operations.)

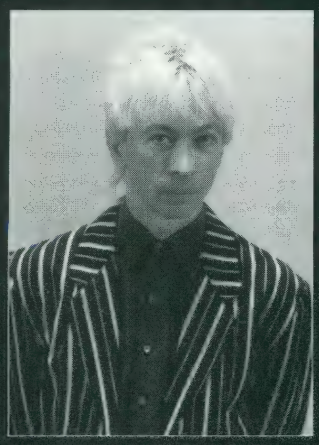
AudioView will not disappoint those looking for amplitude adjustment features. We were satisfied by the operation and sound quality of commands such as scale (adjusts the volume by a factor of .01 to 10), normalize, and fade-in/out (linear or exponential). The noise gate is an effective tool for eliminating background noise or subtle hissing; unfortunately, it lacks a graphic indicator to display what you're about to strip away.

The echo command is fun to play with, but certainly will not replace your Lexicon 300. You can define the time and depth, although AudioView supplies four presets. The ambience preset adds the slightest amount of echo; you'll have to increase the depth setting to hear a change in the sound. The manual claims that the stadium preset lends a spacious "concert hall" quality to the selected audio region, but it actually sounds more like a slapback delay. Resonance is cool, though — a nice vocoder effect — and the long echo is very convincing. The only problem plaguing the echo command is the snail-paced processing time when a thick depth setting is applied: We tried to add echo with the maximum depth value to a 16-bit, 44.1kHz stereo sample that was only two seconds long, and even on our 386DX-40 the processing took about four minutes to complete. Maybe you could use this time to send in your registration card.

Digital audio is rather unforgiving when it comes to chewing up hard disk space. That's why we were relieved to see several file conversions in AudioView's repertoire. Halving the sample rate and changing the file from stereo to mono will leave you with a file of adequate audio fidelity (for multimedia applications), and save three quarters of the disk space. Don't ex-

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VOYETRA AUDIOVIEW

pect to perform the same trick with the 16- to 8-bit command, however; this is strictly useful for playing your file on an application that supports only 8-bit sound.

To get the most from Windows 3.1, AudioView supports Object Linking and Embedding (OLE), a method of sharing or transferring information between applications. Thus, a digital audio file can be recorded and edited in AudioView, and subsequently linked or embedded into another application so that the file plays at the chosen point in the other application — a powerful feature for multimedia types who would rather run their presentations from word processing or graphic programs than AudioView.

Experienced audio tinkerers will rarely find the need to refer to the manual; nevertheless, it is an excellent resource for beginners, including a comprehensive tutorial, plenty of diagrams, a brief "real world" application for each command, a thorough index, and even a primer on the basics of digital audio.

While we are not blown away by AudioView, it's a convenient tool for home musicians and multimedia users who are looking for more control over their sound. If you can afford occasional sit-and-wait annoyances during cut, paste, or echo procedures, and live with the potential for pops when pasting, AudioView may be a good compromise between your ears and your wallet.

—Andrew Roberts and Steve Santana

WAVEBOY PARALLEL EFFECTS, AUDIO-IN EFFECTS, & RESONANT FILTER DISKS

NEW EFFECTS ALGORITHMS FOR ENSONIQ EPS-16 PLUS & ASR-10

Pros: Inexpensive upgrades. *Parallel Effects:* Four separate mono processors available at once. *Audio-In Effects:* Allows EPS-16 Plus/ASR-10 to double as sampler and outboard effects processor. *Resonant Filter:* Realistic Minimoog-like filter.

Cons: *Audio-In Effects:* Pops and clicks often accompany loading of effects from disk. *Resonant Filter:* Real-time Q adjustments can lead to audible popping noises.

Main Features: Enhanced effects capabilities, including four simultaneous independent effects, real-time processing of signals from an external source, and filter resonance. Version 1.2 of the *Parallel Effects Disk* provides 16 four-effect combinations made up of reverb, chorus/flange/delay, and distortion/filter/delay. Also included is a pitch-shifter/reverb algorithm. *Audio-In Effects Disk* includes 21 effects algorithms, mostly for processing line- and mike-level signals coming into the sampling input(s). Pitch-shifting algorithms (single- and triple-pitched) and current EPS-16 Plus operating system (1.3) also included. *Resonant Filter Disk* features Minimoog sample and resonant lowpass filter, and two-op FM effects algorithm with sine waveforms.

Suggested Retail Price: $39.95 each.

Contact: Waveboy Industries, Box 233, Paoli, PA 19301. (215) 251-9562.

REMEMBER THE FREE-FORM HACKing days of the Ensoniq Mirage? Several third-party vendors offered alternate operating systems that expanded that popular sampler's functionality and capabilities. These days, Bill Mauchly of Waveboy is doing something similar for descendants of the Mirage, the EPS-16 Plus and ASR-10. In a nutshell, Waveboy's products add dandy new capabilities to the EPS/ASR's built-in effects processors. With any or all of these utilities, you might rediscover — as we did — how much fun and effective the Ensoniq sampler can be.

Parallel Effects Disk. Seventeen new effects algorithms are provided on this disk. "Parallel" refers to the sub-effects provided by the algorithms: The EPS/ASR's normal twin stereo processors are broken into four independent processors that can be separately accessed according to the output bus and pan position assignments for each voice. Thus you can assign a voice to pass through effects A and B via bus 1 or effects C and D via bus 2. If you've chosen bus 1 and set the voice's pan amount to a value of –99, the voice will only be processed by ef-

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fect A. Increasing the pan parameter from –99 will amplify the voice's signal in effect B until you reach a value of zero, at which point the voice will be equally processed by effects A and B. Going from zero to +99 gradually decreases the voice's level to effect A until it's only processed by effect B at a value of 99.

What kind of effects do you get? Reverb, chorus/flange/delay, and distortion with chorus and reverb, grouped together in 16 different setups of four sub-effects. Included are setups that do four different reverbs, four choruses, or four distortion/filter/delays; the remaining 13 algorithms are combinations of sub-effects, such as two choruses and two reverbs, one distortion and three reverbs, and distortion plus chorus plus two reverbs.

You can vary reverb delay time to simulate different room sizes. Virtual spaces can range from the equivalent of a small room up to a stadium. Decay times are also programmable, and their possible lengths depend on the chosen room size. Besides the room size and decay time, you can adjust the predelay, high frequency damping, and diffusion, as well as the volumes and pan positions of both the reverb and dry signals.

The chorus algorithm includes flange and delay modes, the latter ranging up to 500ms (otherwise known as half a second). You can independently set the pan positions and volumes of the wet and dry signals. Two delay taps are provided. One lets you program the delay time, feedback amount, and LFO rate and depth; the other lets you set the delay time and LFO depth.

Distortion is often unfairly shunned by synthesists, but we love it for the right applications, like nasty fuzz on Fender Rhodes or guitar tones, and even on drums. Waveboy lets you do quite a bit more than set the distortion volume, gain level, and pan position; you also have lowpass filters with resonance that come before and after the distortion stage. The filter cutoff and resonance are adjustable for both pre- and post-distortion filters, and you can modulate the pre-fuzz filter's frequency cutoff using the mod wheel, aftertouch, or practically any other controller. The delay function in this algorithm provides up to 546ms of delay time with programmable feedback amount.

Versions starting with 1.1 of the Parallel Effects Disk include a bonus effect called the Time-Dicer, a pitch-shifter with reverb that, like some algorithms on the Audio-In Effects Disk, allows you to enable the EPS/ASR's sampling input so that you can process signals from an external source, such as guitar or microphone (both mike- and line-level settings are provided for the input). Time-Dicer, which is a mono effect and doesn't offer the four-way parallel processors like other algorithms on this disk, will transpose signals up or down by as much as three octaves, with fine-tuning control. Transposed pitches can track the keyboard, resulting in some interesting harmonies. The pitch-shifted and reverb level mixes are programmable, and the pitch-shifted signal can be delayed by up to 500ms. You can control the pitch-shift mix in real time using the mod wheel or another controller. This algorithm alone justifies the Parallel Effects Disk's $40 price, but we wouldn't want to do without any of those other effects.

Audio-In Effects Disk. Here, the sampling input on the EPS/ASR really gets a workout. And what a concept: Using your sampler to process your vocals or another instrument at the same time that you use it to play samples. You can't get much more gear-efficient for live performance than that, unless you go completely acoustic.

Twenty-one of the 26 files enable the sampling input, routing it via bus 1 through the effects. You can set the input to mike or line level and adjust its gain via the data slider. Since the external input overrides the internal signal, you'll have to switch your internal sounds to bus 2 or 3, or to the auxiliary setting to access Ensoniq's optional multi-output expander. You won't be able to hear bus-1-assigned instruments after you load an effect that enables external input.

Although the EPS/ASR effects can't compare with a Lexicon, the sound quality of the reverbs and other effects — half of which are essentially ROM effects altered for external input — should be fine for live performance and non-critical recording applications. We recommend you use a fairly hot mike, because at high-gain mike levels the EPS/ASR's output signal gets noisy, and the noise gets amplified by effects like distortion and chorus. This may explain why you have to keep the sampler's volume slider down

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when you load input-enabled algorithms. Some are prone to trigger a noisy snap in the EPS/ASR's output circuitry, and at high levels you could damage your speakers, not to mention you and your audience's ears.

Along with ROM-based algorithms, such as reverbs, delays, and combinations, such as flange/reverb, Leslie/distortion/reverb, compression/distortion/reverb, and wa-wa/distortion/reverb, there are eight new effects on the Audio-In Effects Disk. Two of these offer plate reverbs, which sound brighter and more metallic than a room-simulating reverb and work particularly well for percussion and, in some cases, vocals. The only difference between the two plate reverbs is that one enables the sampling input and the other doesn't, allowing stereo access to the effects for internal EPS/ASR voices only.

There's a non-linear reverb algorithm that resembles a gated reverb/delay sound. Notes swell and disappear more quickly than with a natural reverb, sometimes accompanied by a buzzing sound. This effect could take some getting used to, but it could lead to some unexpected and useful results.

In the tradition begun by the Parallel Effects Disk, the Audio-In Effects Disk includes three four-effect algorithms. Two of these feature pairings of chorus and reverb — one with the sampling input enabled, the other without. The third file, suitable for electric guitar and other signals you might like to distort, offers distortion, delay, and reverb for the input and chorus and reverb sub-effects for internal signals routed via bus 2.

The Audio-In Effects Disk offers another Time-Dicer effect. This one has reverb and comes ready to pitch-shift incoming signals down an octave. Following this algorithm is a three-part pitch-shifter that loads up with no pitch offset. You can quickly dial in harmonies of up to ±36 half-steps away from the incoming pitch, with fine-tune control.

Vocalists interested in adding harmonies but not more singers will especially appreciate the keyboard harmony file, which makes use of the three-part harmony algorithm. The sampling input is active so your mike will always be live, and if you play up to three notes while you sing, you'll hear the corresponding harmonies along with your voice. Middle *C* on the keyboard will play unity pitch. Playing the *E* above that results in a major third, the *G* above that a perfect fifth, and so on. Want those helium-voice munchkins? Play way up high on the keyboard. For Worf and Darth Vader, play way low. In some respects, this works quite a bit like the Digitech Vocalist (reviewed Nov. '92), although it isn't as flexible and doesn't sound as good. As long as you release notes before playing new ones, and don't exceed the three-note limit, you can change notes in the chord and the harmony part will follow. You can't, though, sustain harmonies using the footswitch; the algorithm responds only to notes played on the keyboard. With a little practice, you can sound like four-fifths of the Temptations.

The final pair of files on the Audio-In Effects

Disk demonstrate, using Janet Jackson's "Rhythm Nation," how you can use Time-Dicer to maintain the pitch of a sampled slice of music while changing its tempo, or vice-versa — maintaining the tempo while changing the pitch. This is a neat trick that only works in monophonic (one note at a time) mode. Although the demos successfuly change tempo without changing pitch and vice-versa, we weren't quite as successful with another rhythm loop, in which both pitch and tempo varied noticeably. Still, EPS/ASR owners may find the technique — as well as the Audio-In Effects Disk itself — indispensable once they start using it.

Resonant Filter Disk. The Resonant Filter Disk arrives just in time to cash in on the vintage-synth craze. It contains two instrument and two effects files. Load Rez Minimoog and you get what sounds an awful lot like our favorite old analog synth, thanks to a square-wave sample that plays monophonically and Waveboy's Rez Filter effects algorithm. The latter has a four-pole, 24dB-per-octave lowpass response — like old Moog filters — along with reverb and chorus/delay sub-effects, all of which can be loaded into the EPS/ASR for use with any sample and instrument(s). You can dial up and vary the filter's cutoff frequency and resonance level as you play, although adjustments to resonance can introduce popping into the sound. ADSR parameters will also be found in the effects algorithm menu, for use as a modulation source for filter cutoff frequency. Sample-and-hold modulation was never a stock part of the Minimoog, but it's available here, leaving you with no excuse not to play Joe Walsh's "Life's Been Good" at your next gig. Note: There is only one filter that operates on the output of the sampler as a whole, no matter how many notes you play. A single/multi-trigger switch lets you select between standard Minimoog legato mode and envelope retriggering with each new note.

Load DX-16 Plus and you get a two-op FM voice that could easily be reproduced using only operators 1 and 2 of the Yamaha DX7's first algorithm. It's a clangerous, twangy sound that responds dynamically to keyboard velocity. As long as you play single notes, octaves, and perfect fourths and fifths, the sound is musically pleasing; other note combinations result in a brash discord that simulates fuzz box distortion. You can adjust the FM depth — thereby increasing or decreasing the discord-created distortion — and make changes to chorus and reverb, effects that are included with the algorithm.

DX-16 Plus uses two sine wave samples, but you can load its associated FM+FX effects algorithm for use with other instruments. Frequency modulation of waveforms more complex than sine waves can result in seriously distorted sounds that have a hugely better chance of being heard in techno than in new age music.

If you want a good Minimoog sample and resonant lowpass filter for your EPS-16 Plus or ASR-10, both can be had for a mere $40. That's still a lot cheaper than you can find a Minimoog for today. Like the other Waveboy disks, the Resonant Filter comes cheap and creates new possibilities with your sampler. —*Mark Vail*



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▲ SOFTWARE

BIG NOISE PACKAGE (IBM-PC). Big Noise has jam-packed a variety of Windows applications into the **MIDI MaxPak** Version 2 ($249.95). **SeqMax** is a sequencer that supports SMPTE timecode and graphic editing of MIDI data, and features 64 linear tracks, 255 patterns per song, and multiple MIDI port support. The new version offers a score window that allows viewing of all tracks as standard music notation, a 64-channel track sheet mixer with graphic control of volume, mute, solo, and pan, and remote control of sequencer transport functions. **MixMax**, a toolbox of graphic MIDI controls, allows users to combine faders, rotary knobs, LED displays, pushbuttons, and rocker switches to create an automated mixer. Preset configurations are included for the Fostex DCM-100, MOTU MIDI Mixer 7, Mackie CR-1604 with Otto, and General MIDI. Each control is individually assignable to any MIDI message and channel, and event list and graphic editing are included. A new feature in the **LibMax** generic librarian lets you export patches and banks as Standard MIDI Files. **TapeMax** gives the PC control of all tape deck transport functions, and includes seven autolocate positions, a return-to-zero button, and 32 channels of record-enable buttons. **JukeMax** can segue from one sequence to another, loop and advance sequences, and transpose a sequence up or down. The live MIDI File player, which supports the creation of set lists with any desired number of songs, also can scroll lyrics up the screen as it plays the MIDI file. **MIDI Director** will run up to 16 Big Noise Windows applications simultaneously, and allow up to eight interface drivers to be loaded at once. Big Noise Software, P.O. Box 23740, Jacksonville, FL 32241. (904) 730-0754. Fax (904) 730-0748.

REEF SYSTEM. In an effort to provide an affordable introduction to the world of MIDI, Reef Digital Sound has put together a computer-based MIDI sequencing and editing system. **MIDI-for-a-Song** ($699.99) includes not only the computer — an IBM-XT (Turbo) with 1Mb RAM — but also Twelve Tone's Cakewalk 4.0 sequencing and editing software and an MPU-401-compatible MIDI interface card. The package comes complete with manuals, the *Managing MIDI Guide*, two 10' MIDI cables, word processor software and games, and blank floppy disks. Reef Digital Sound, 4545 Industrial St., 5P, Simi Valley, CA 93063. (800) 777-3475. (805) 527-9954. Fax (805) 527-0705.

DIGIDESIGN UPGRADE (MACINTOSH). With its latest upgrade, Digidesign's Turbosynth synthesis and sound design software now includes support for stereo Sound Designer II and AIFF files. **Turbosynth SC** ($349 U.S., $401 international; upgrade $29 U.S., $49 international), which allows users to create sounds from scratch or to modify existing samples, offers new sound playback options, including playback from SampleCell and SampleCell II or via an audio playlist in Pro Tools, Sound Tools, or Audiomedia digital recording systems. The software also features a new Diffuser Module for reverb and other effects and 32-bit Clean System 7.0 support. Digidesign, 1360 Willow Rd., Menlo Park, CA 94025. (415) 688-0600. Fax (415) 327-0777.

Owner's of Digidesign's Pro Tools system can use the new **Alphatronix Inspire III** ($4,495) optical drive (ISO-standard, 1.3 gigabyte) to record 8-track audio sessions direct to optical disk. Average seek time is reportedly less than 19ms, and maximum sustained throughput is 2.2Mb/second. The Inspire III can also be used for data back-up. Alphatronix, 4022 Stirrup Creek Dr., P.O. Box 13978, Research Triangle Park, NC 27709-3978. (919) 544-0001. Fax (919) 544-4079.

▲ HARDWARE

JBL/SOUNDCRAFT SPIRITS. The Soundcraft **Spirit Folio 4** ($1,795) is a four-bus console with sub-grouping facilities, eight aux sends, 20 inputs (12 mono, each with its own 48V phantom power switch and three-band mid-sweep EQ, and four stereo channels), and highpass filter. Two pairs of aux sends are stereo and there are four sets of stereo returns. Mono and stereo channels offer EQ in/out switches. All mike, line, and stereo inputs are balanced. Aux and master outputs are ground-compensated. The Folio 4 also has a VU-reading bargraph that monitors the mix output, and an upper peak-reading meter that monitors the mix, tape return, stereo return, stereo aux sends, or group outs. Monitor outputs include PFL soloing on all channels and AFL soloing on the aux masters. Four group outputs allow grouped routing of signals to multitrack recorders, while dedicated tape sends and returns enable record and playback mixes without repatching.



The **Spirit Folio Si** ($725) 18 x 2 mixer is offered in rack-mount (seven spaces) and table-top versions with 60mm channel faders. Its 18 inputs accommodate a range of sources: There are six stereo inputs with three-band fixed EQ for keyboards and sound modules, two stereo inputs with two-band EQ for additional keyboards, for connecting tape machines, CD players, or effects returns, and two standard mono input channels for vocals or acoustic instruments. Each of the mono input channels has a mike preamp, 48V phantom power, highpass filter, and a three-band EQ with a sweepable midrange band. Each channel has two aux sends, with aux 1 switchable pre/post fade, and latching PFL soloing. (Soloing is also available on the aux masters.) There are insert points on the left and right masters, and 12-segment bargraph metering. The main outputs are ground-compensated and impedance-balanced to eliminate hum. JBL Professional, 8500 Balboa Blvd., Northridge, CA 91329. (818) 893-8411. Fax (818) 893-3639.

KORG SMORGASBORD. The **X3** ($1,949) is a 61-key music workstation with a 16-track sequencer, built-in disk drive, General MIDI compatibility, and two independent multi-effects systems. The unit offers 340 multisounds, 164 drum sounds, and a tone generator section with 6Mb of waveform memory. Two banks of RAM memory can store 200 programs and 200 combinations, and the SRC-512 RAM memory card can contain two additional banks. Korg's **X3 CD** is a free CD ($2.95 for shipping costs) with eight music tracks plus a CD-ROM track for the Macintosh with two programs: on-screen remote control for the music tracks (with graphics and comments from each composer) and a guided tour of the X3.

The **05R/W** ($799) is a half-rack General MIDI sound module with 32-voice polyphony, a MIDI/com-

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puter interface for Macintosh, IBM-PC, and NEC PC-98 series, and two independent, fully programmable stereo multi-effects processors that can provide up to four simultaneous effects. The module offers 100 programs and 100 combinations and includes 128 GM programs. The 05R/W also incorporates Korg's Parallel 3 effects configuration for independent effects sends to both processors for each of the drums in a kit or each of the timbres in a combination or multi-mode setup. Korg USA, 89 Frost St., Westbury, NY 11590. (516) 333-9100. Fax (516) 333-9108.

FLIGHT OF THE FALCON. Atari has begun shipping three versions of the **Falcon030** into North American markets. The 1Mb RAM ($799), 4Mb RAM ($999), and 4Mb RAM/80Mb hard drive ($1,299) versions each have a built-in SDMA digital audio sound engine (eight channels), stereo 16-bit DAC/ADC, DSP, on-board MIDI ports, SCSI II, SVGA graphics, 16-bit color, and genlock capability. The hard-drive-equipped units come bundled with Falcon D2D stereo hard disk recording software, Atari Works (word processor, spreadsheet, and database package), and Speedo GDOS font scaling package using Bitstream's Speedo fonts. Atari Music, 1196 Borregas Ave., Sunnyvale, CA 94089. (408) 745-2014. Fax (408) 745-2088.

ROLAND, ROLAND, & MORE ROLAND. The E-86, E-56, E-36, and E-16 make up Roland's E-series line of synthesizers, each with 61-note velocity-sensitive keyboards with programmable splits, and digital reverb and chorus. With the exception of the E-16, all are GS/General MIDI-compatible with 16-part multitimbral capability and 28-voice polyphony. More specifically, the **E-86** ($2,895) boasts 241 18-bit multi-sampled sounds, 128 user programs, and a 3.5" disk drive that can play Standard MIDI Files, record musical performances directly to disk, and save user programs. Other features include 56 on-board music styles, eight user-programmable styles, a 2 x 40 LCD screen, and an alpha dial. With 64 music styles and 64 user programs, 226 16-bit sounds, and a 6-track song composer, the **E-56** ($1,795) is just a step down from the E-86. It has an expansion card slot and a 2 x 20 LCD. The **E-36** ($1,045) contains 64 music styles, 223 sounds, an expansion card slot, colored buttons grouped by function, and a sequencer. Finally, the entry-level **E-16** ($745) offers 32 music styles, 223 sounds, 24-voice polyphony, a sequencer, built-in amplified speakers, and a headphone output. The latest addition to Roland's Sound Canvas line is the **SC-55mkII** ($825), a half-space rack-mount General MIDI sound module with 28-voice polyphony, 354 tones, and a serial port for connection to a Macintosh or IBM-PC. The 16-part multitimbral unit also offers 16 reverb/delay and chorus/flange effects, on-board digital effects processing, stereo audio inputs, and a Minus-One function (for muting a part during a song).

Roland's half-space rack-mount **P-55** ($650) has 4Mb of waveforms, 32 piano sounds, and built-in digital effects. You also get three-part multitimbral capability, 16 user-programmable patch locations, 28-voice polyphony, layer and split functions, and adjustable velocity response. Stack mode allows eight P-55s to be used to together.

And there's more: Ten 150Mb CD-ROM libraries, ranging from African drums to orchestral winds, comprise the **L-CDP** Project Series ($150 each). These S-750/770- and SP-700-compatible libraries are grouped by performance and offer 16-bit sample resolution. Roland, 7200 Dominion Circle, Los Angeles, CA 90040. (213) 685-5141. Fax (213) 722-0911.

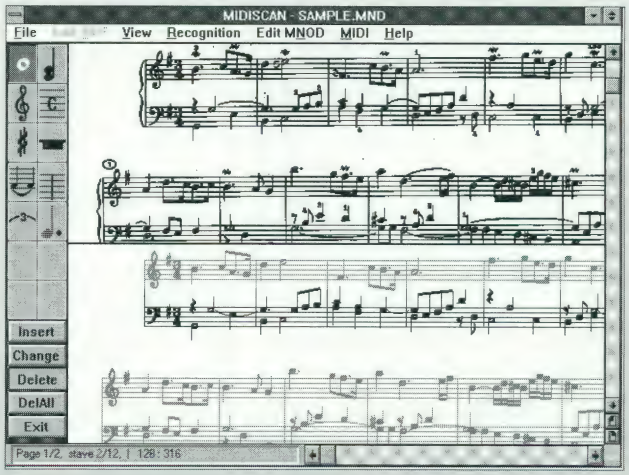
▲ BITS & PIECES

STUDIO STUFF. Constantly misplacing your tools, cables, or microphones? Middle Atlantic Products' **Model ED Econo-Drawers** can put an end to your search. The one- ($48.89), two- ($53.33), and three-drawer ($57.78) storage units are 10" deep and have a spring-loaded latch and fully enclosed top. Also from Middle Atlantic is the **Model LRK** ($286.67) studio rack, which is ideal for reel-to-reel tape machines and mixers. The LRK measures 27.5" deep by 31.75" high, houses ten vertical spaces on the bottom and 12 on the upper slope, and features pre-installed casters. Middle Atlantic Products, 8 North Corporate Dr., Riverdale, NJ 07457. (201) 839-1011. Fax (201) 839-1976.

HAMMOND CONVERSIONS. When you give Keyboard Rebuilders your **Hammond B-3**, **C-3**, or **A-100**, **Leslie**, and power amp, they will convert it to a two-piece (with stand) portable unit for a nominal fee: $2,000 for a portable B-3 and $700 for a portable Leslie. Nothing will be lost when the components are reinstalled in a lightweight custom-built case . . . except about 200 pounds. You must provide preamp, power amp, volume footpedal, and card, and your empty cabinets will not be returned. A device ($150) for Leslie motors that allows switching between fast and slow speeds is also available. Components can also be supplied (prices vary). Keyboard Rebuilders, 3454 Morning Glory Ave., Baton Rouge, LA 70808. (504) 343-2369.

ALESIS ACCESSORY. The 32" **Master Studio Rack** case ($189), the latest in Alesis's Command Performance accessory collection, offers 2" screw-on casters for mobility, a slant front for convenient module access, and a zippered accessories pouch. The first of three accessory compartments that can be installed is a five-space rack-mountable VHS tape shelf that accommodates up to 14 tapes. A four-space rack-mountable solid-steel locking security cover and a four-space rack-mountable rack vault for storing tools, etc., with a keyed locking latch handle can also be installed. Alesis, 3630 Holdrege Ave., Los Angeles, CA 90016. (310) 558-4530. Fax (310) 836-9192.

SPEC SPOTLIGHT



MUSITEK MUSIC-READER (IBM-PC). Wouldn't it be nice to be able to convert printed sheet music into multi-track MIDI files? Like us and many others, Musitek thought it would be, so they have developed automatic music reading software that reportedly recognizes note pitches, note and rest durations, chords, accidentals, ties, bar lines, clefs, and key and time signatures with up to 98% accuracy. **MIDIScan** for Windows Version 1.0 ($379) can process multiple pages of a score and correct skewed images. Non-note objects such as titles, guitar tablature, lyrics, and other markings that do not translate into MIDI are ignored. Here's how it works: First, a hand or full-page scanner (not included in the package) is used to capture each page of a musical score. The scanner outputs TIFF graphic files of multiple pages of music. MIDIScan loads these files and processes them sequentially, keeping track of every page, staff system, and staff line processed. Processing takes three to five minutes per page. The MNOD graphic editor allows for correction of the recognized score. Once edited, the corrected MNOD file is converted to a multi-track Standard MIDI File and saved to disk. Musitek, 410 Bryant Cir., Ste. K, Ojai, CA 93023. (805) 646-8051. (800) 656-8055 (orders). Fax (805) 646-8099. Distributed nationally through ThinkWare, (800) 369-6191.

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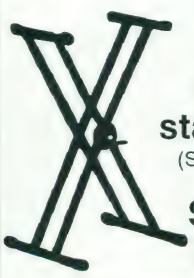
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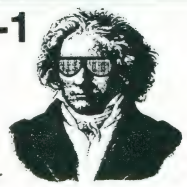
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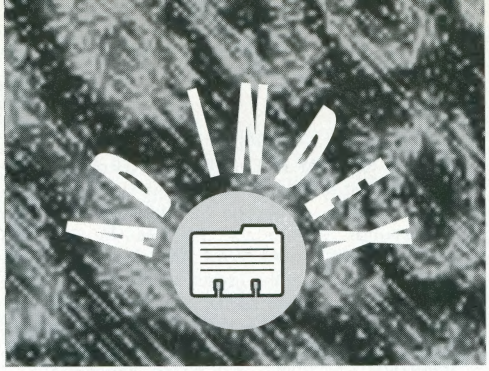
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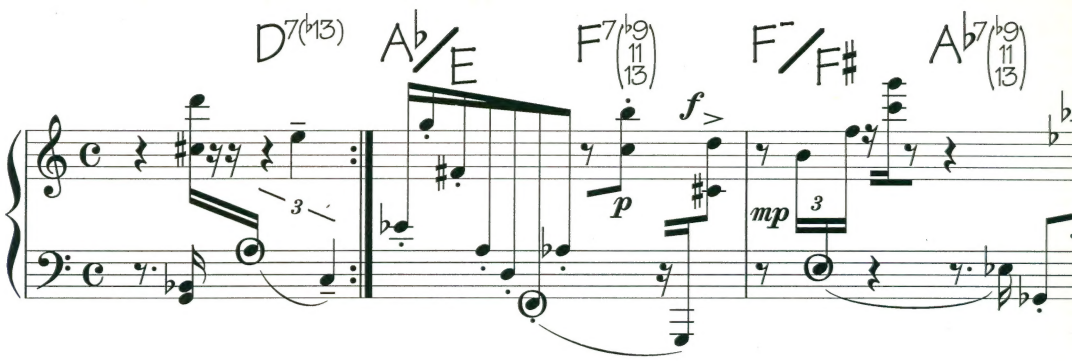
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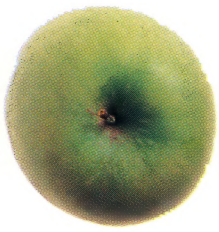
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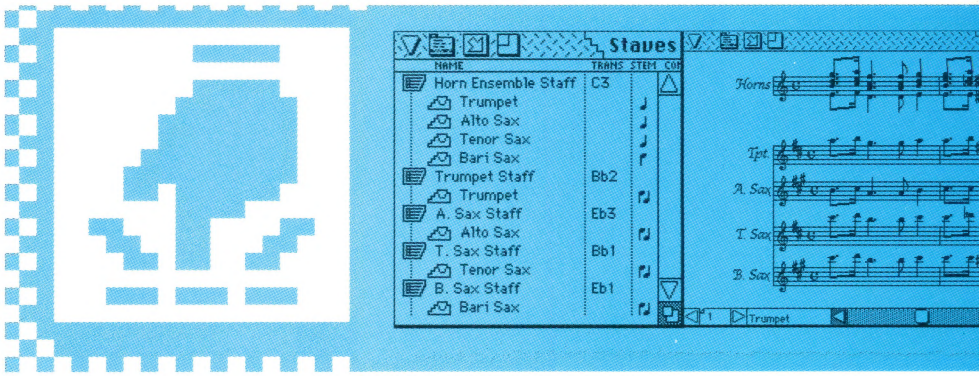
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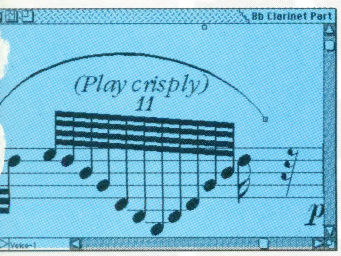


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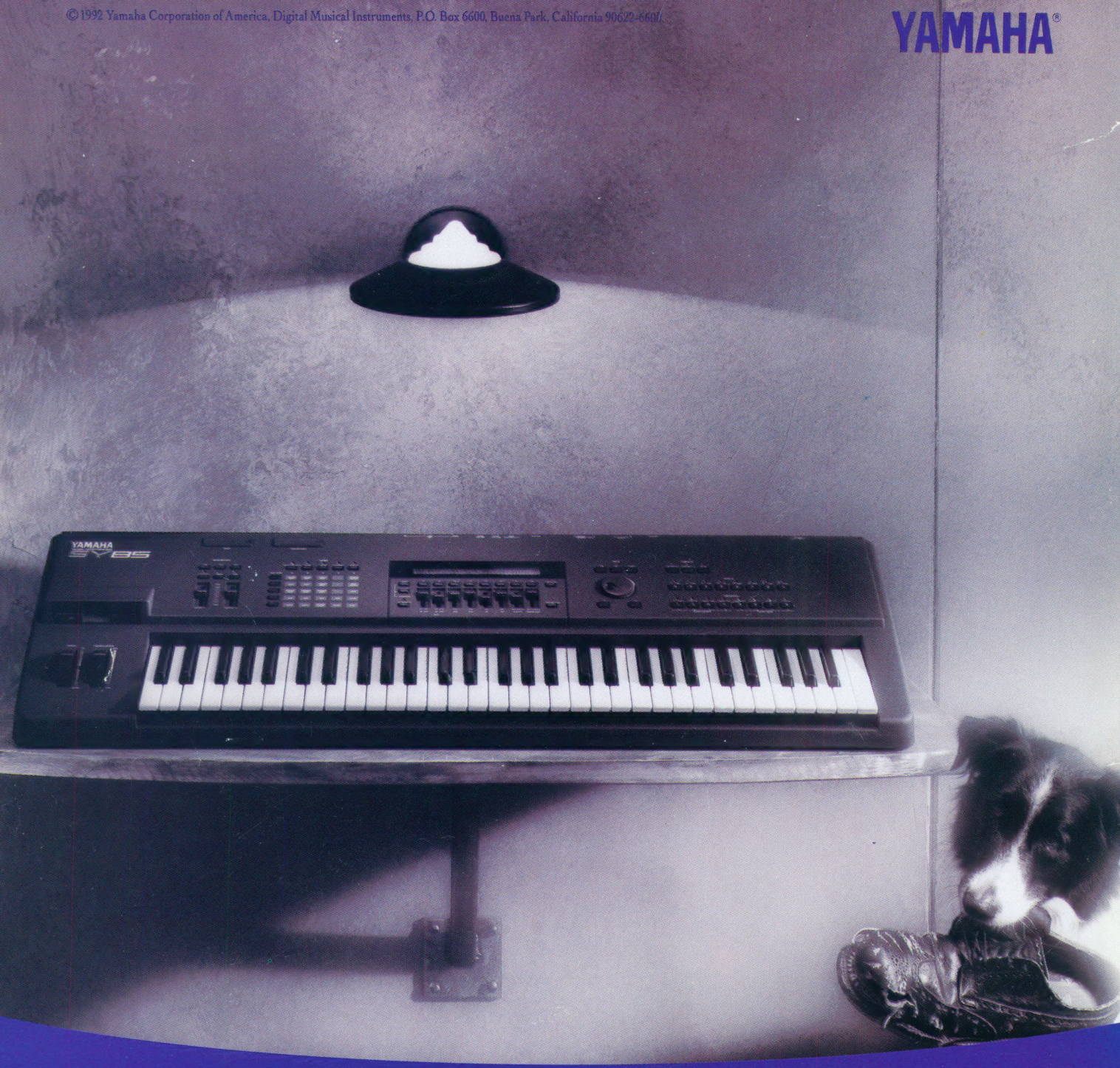
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